

# **CGP-100/200 Graphics Processor Conversion Module**

Logic Diagrams

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DS21E1026 (2 sheets)

*Paddleboards (Revision B)*

DS21E292 (1 sheet)

DS21E287 (1 sheet)

*128/32K A/B Port Memory Unit (Revision E)*

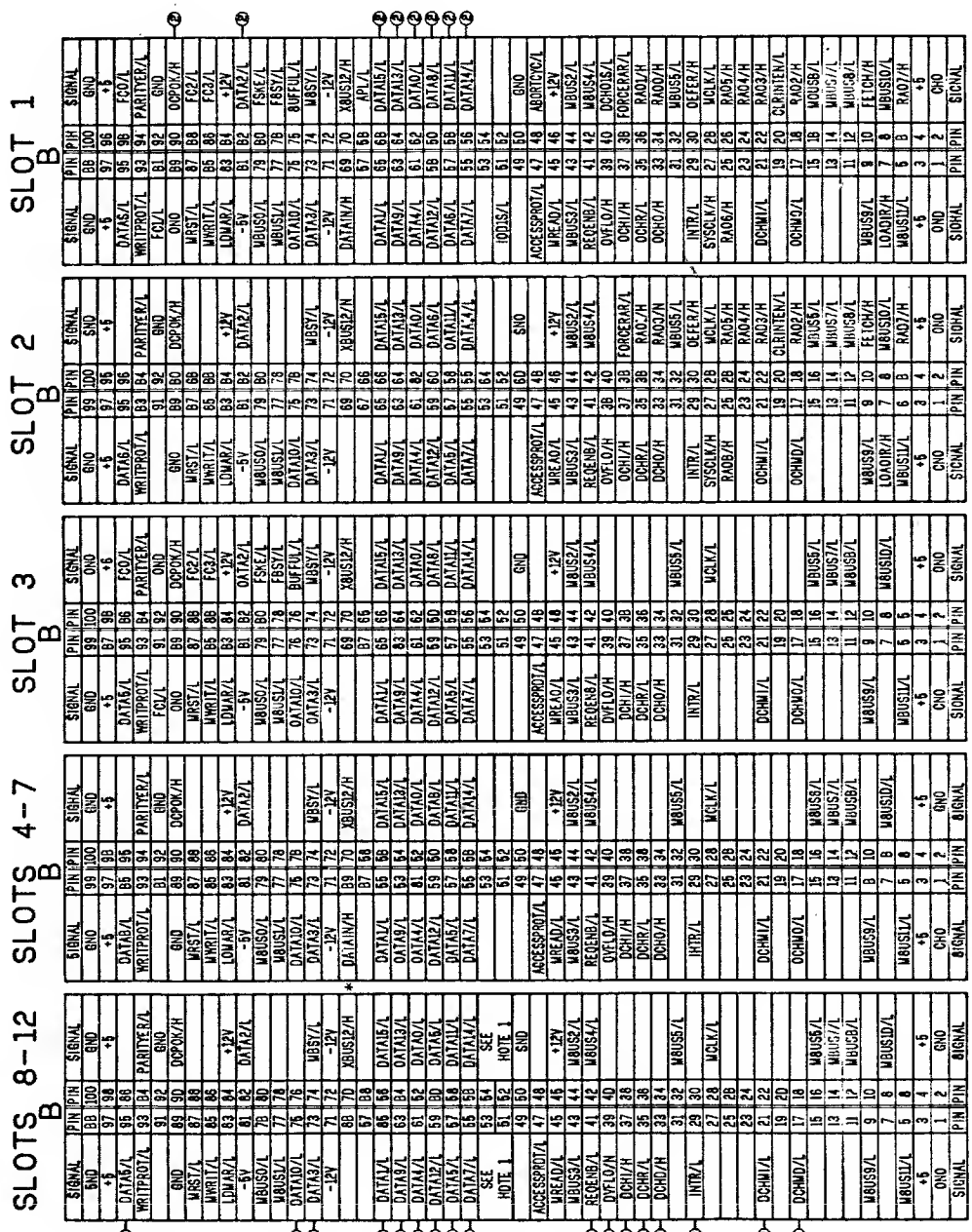
DS21E252 (16 sheets)

*VGU Adaptor Board (Revision A)*

BS23E027 (1 sheets)

**12 Slot Backplane**

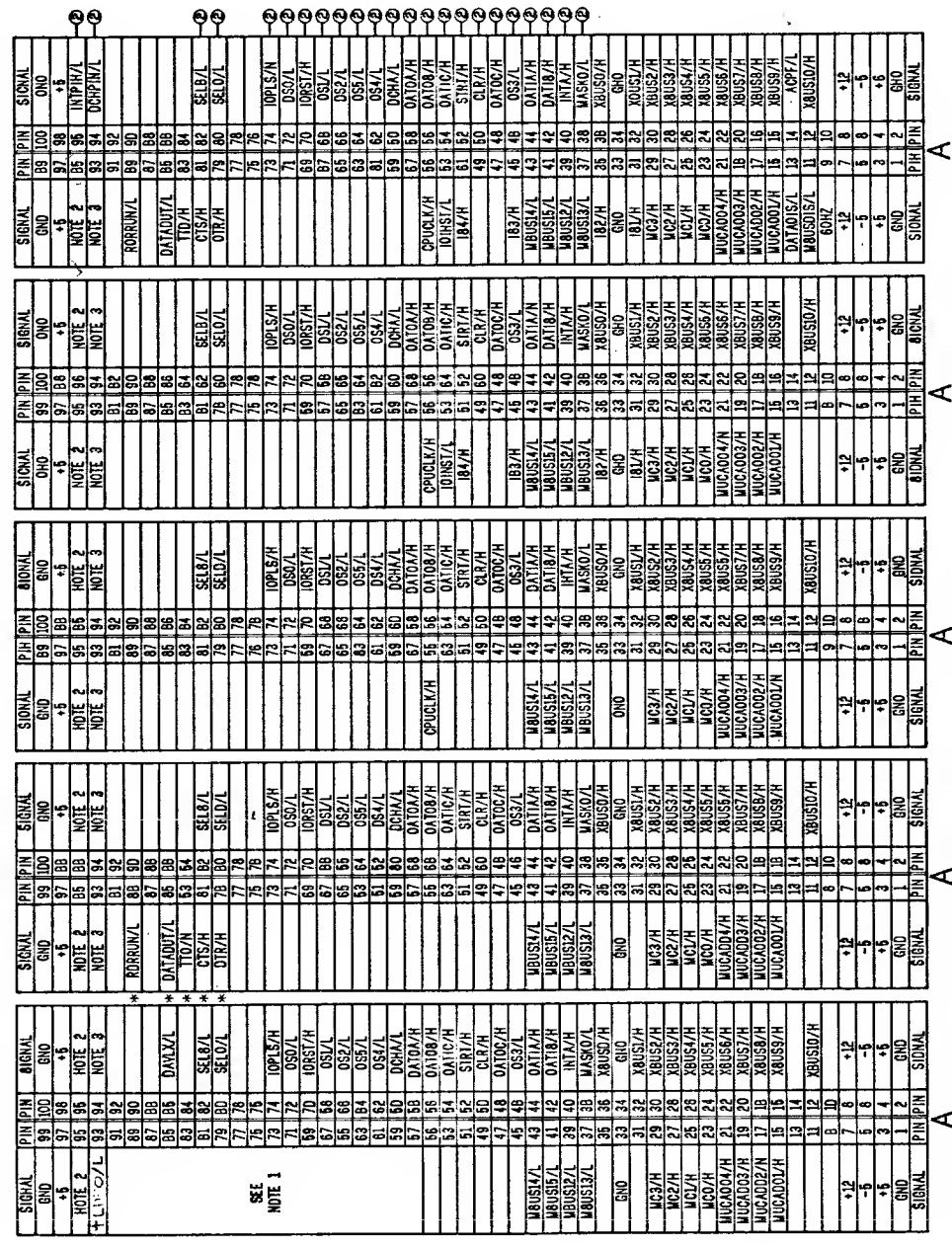
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NOTE 1:  
SLOTS 8,9,10,11, AND 12 HAVE PROVISIONS FOR EITHER VGU OR IOS INTERFACES. BOTH USE THE CORRESPONDING 26 PIN CONNECTORS J27,J30,J33,J36, AND J39. CONNECTORS J28, J29,J31,J32,J34,J35,J37,J38,J40, AND J41 ARE USED WITH VGU INTERFACES ONLY.

NOTE 2:  
INTERRUPT PRIORITY PASSING CONNECTIONS  
FROM A95 OF SLOT:  
1 2  
3 3  
4 4  
5 5  
6 6  
7 7  
8 8  
9 9  
10 10  
11 11  
12 12

NOTE 3:  
DATA CHANNEL PRIORITY PASSING CONNECTIONS  
FROM A93 OF SLOT:  
1 2  
3 3  
4 4  
5 5  
6 6  
7 7  
8 8  
9 9  
10 10  
11 11  
12 12



J28,J31,J34,J37,J40  
(VGU ONLY)  
1 OUTVID(-) B53  
2 OUTVID(+) B51

J29,J32,J35,J38,J41  
(VGU ONLY)  
1 INVID(-) B54  
2 INVID(+) B52

CPU

MMP

FPU

SMD.MT.PCU.128K

\* SLOT 5 ONLY

VGU/IOS

+ SLOT 12 ONLY

HIGH POWER CONNECTOR  
J25

GND (+5VOLTS RETURN)	2	1	(+5VOLTS OUTPUT) +5
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LOW POWER CONNECTOR  
J26

	2	1	(+5V OUT SEN) +5V
	4	3	(+5V RET SEN) GND
+12V (+12V OUTPUT)	5	6	(+12V OUT SEN) +12V
GND (+12V RETURN)	8	7	(+12V RET SEN) GND
-12V (-12V RETURN)	10	9	(-12V RET SEN) GND
GND (-12V OUTPUT)	12	11	(-12V OUT SEN) -12V
GND (-5V RETURN)	14	13	ACPF/L
-5V (-5V OUTPUT)	16	15	DOPOK/H

TTY CONNECTORS  
J42,J45

SLOTS 1 AND 6	SIGNAL NAME	PIN	SIGNAL NAME	SLOTS 1 AND 6
NC	GND	9	5	NC
A83	TTO/H	7	3	DATAIN/H B69
A86	DATAOUT/L	8	2	RORRUN/L A89
		1	0	OTR/H A79

VGU/IOS CONNECTORS  
J27,J30,J33,J36,J39

SLOTS 8-12	IOS SIGNAL	VGU SIGNAL	PIN	PIN	VGU SIGNAL	IOS SIGNAL	SLOTS 8-12
A83	100TA1/H	TURN04/H	2	15	TURN03/H	108SY/H	A87
A86	108SY/L	TURN01/H	3	18	TURN02/H	100TA1/L	A81
			4	17			
A71	YSIGN1/H	TURN13/H	5	18	TURN11/H	YSIGN1/L	A89
A73	YSTEP1/L		6	19	TURN14/H	YSTEP1/H	A76
A69		TURN12/H	7	20	RCVDAT/H	XSIGN1/L	A77
A79	XSIGN1/H	RCVDAT/L	8	21	UR8SY/L	XSTEP1/H	A83
A81	XSTEP1/L	UR8SY/H	9	22	GND	GND	
			10	23			
A85	TBL8SY/L	IAMBUSY/L	11	24	IAMBUSY/H	TBL8SY/H	A87
GND	GND	TROATA/L	12	25	TBL8ATA/L	TBL8ATA/H	A89
A91	TBL8ATA/H	TROATA/H	13	26	GND	GND	

CONN SLO

J27	8
J30	9
J33	10
J36	11
J39	12

DS21E1026

C

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TOLERANCES  
XX .01  
XXX .005  
XXXX .0025  
FRACTIONAL .00125  
ANGULAR .001

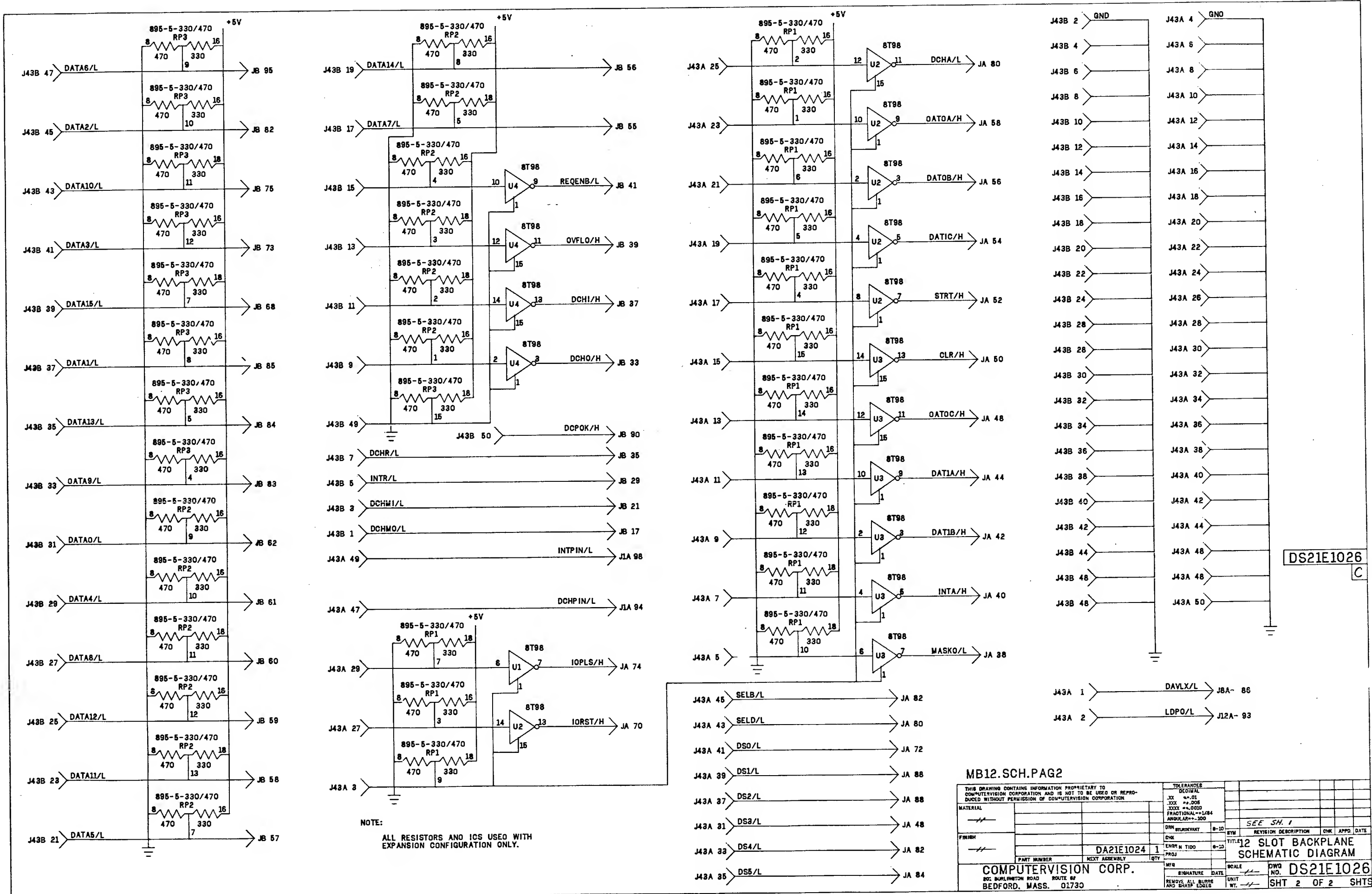
DATE: 11/11/83  
BY: J. M. H.  
CHECKED: J. M. H.  
APPROVED: J. M. H.

DA21E1024 1

COMPUTERVISION CORP.  
301 BURLINGTON ROAD  
BEDFORD, MASS. 01730

REVISION DESCRIPTION  
1. REVISION DESCRIPTION  
2. REVISION DESCRIPTION

UNIT NO. 1  
SHT 1 OF 2 SHTS



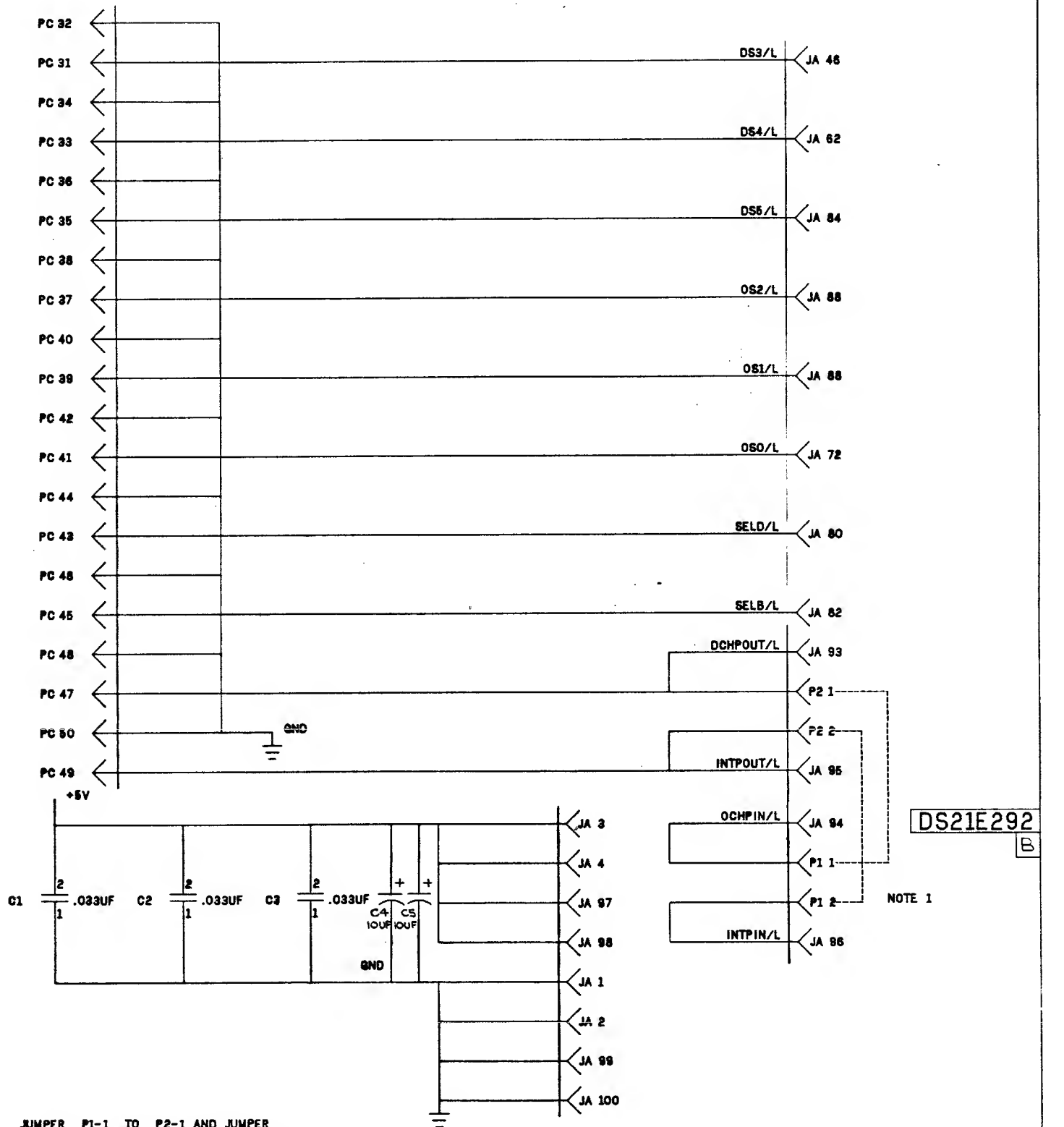
DS21E1026  
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MB12.SCH.PAG2

THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO COMPUTERVISION CORPORATION AND IS NOT TO BE USED OR REPRODUCED WITHOUT PERMISSION OF COMPUTERVISION CORPORATION		TOLERANCES DECIMAL XXX ±.01 XXXX ±.005 FRACTIONAL ±1/64 ANGULAR ±.000		REV 8-10		REV 8-10		REV 8-10	
MATERIAL									
FINISH									
PART NUMBER		NEXT ASSEMBLY		QTY		DATE		DATE	
DA21E1024 1						SIGNATURE		DATE	
COMPUTERVISION CORP.		ROUTE 82		BEDFORD, MASS. 01730		SCALE		UNIT	
						DWG NO.		SHT 2 OF 2 SHTS	

**Paddleboards**

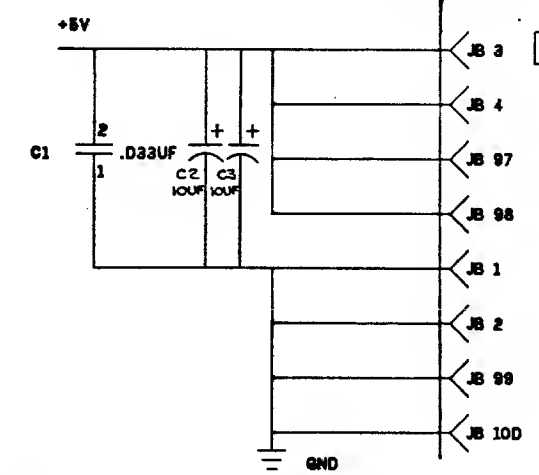
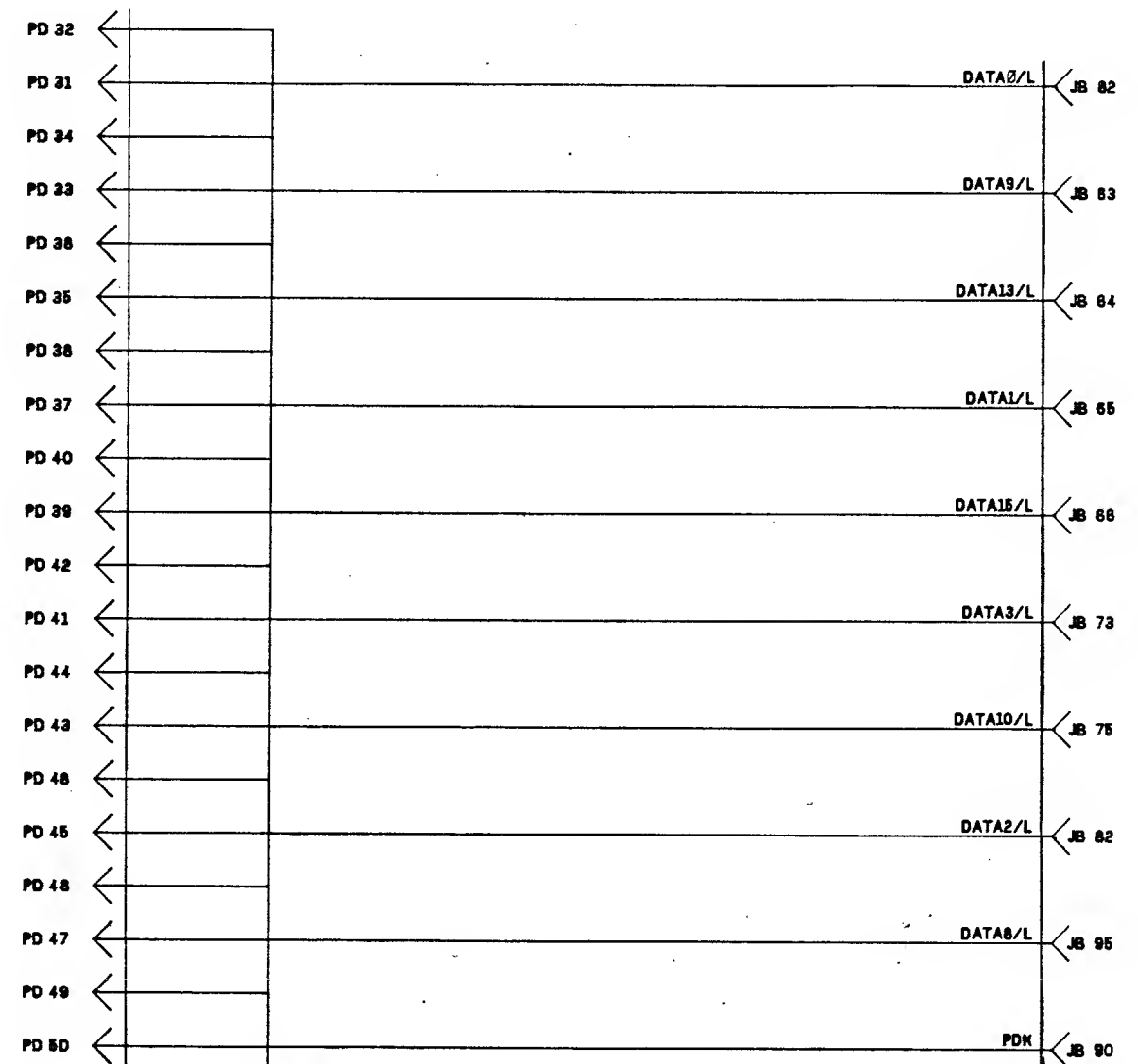
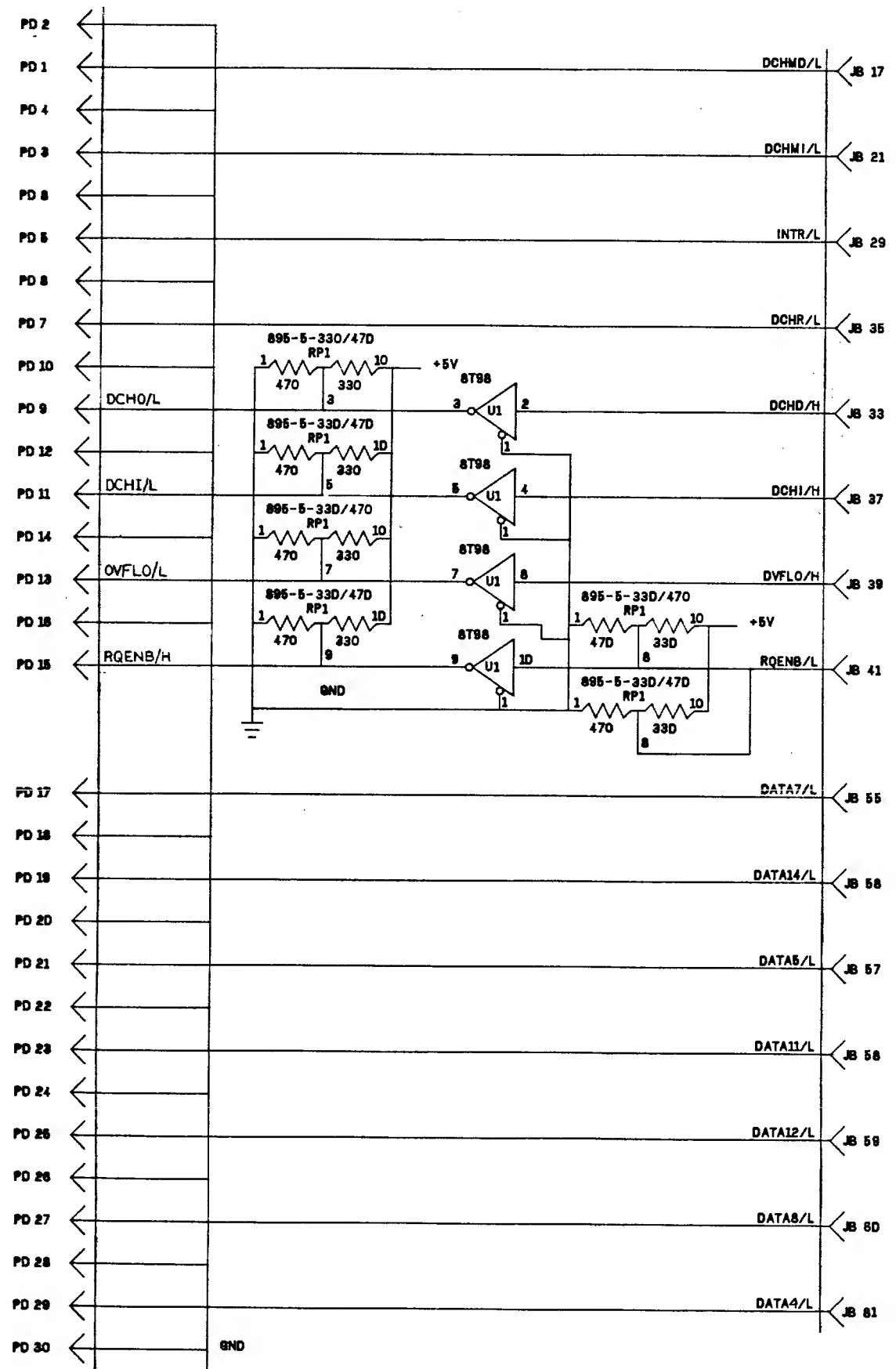
- A Schematic
- B Schematic



NOTE 1 JUMPER P1-1 TO P2-1 AND JUMPER P1-2 TO P2-2 WHEN CONNECTING THE I/O BUS DRIVER-A BD TO AN UNUSED SLOT.

THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO COMPUTERVISION CORPORATION AND IS NOT TO BE USED OR REPRODUCED WITHOUT PERMISSION OF COMPUTERVISION CORPORATION.		TOLERANCES DECIMAL XX .01 XXX .005 XXXX .0005 FRACTIONAL 1/64 ANGULAR .100		ECO# 3384 REL. ECO #3233	
MATERIAL		DATE	BY	CHK	APPRO. DATE
FINISH		DATE	BY	CHK	APPRO. DATE
PART NUMBER		NEXT ASSEMBLY		QTY	
COMPUTERVISION CORP.		DT21E191		1	
301 BURLINGTON ROAD BEDFORD, MASS. 01730		SIGNATURE		DATE	
REMOVE ALL SURFS AND BLANK EDGES		SCALE		DWG NO. DS21E292	
		UNIT		SHT 1 OF 1 SHTS	





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MATERIAL		FINISH		QTY		TITLE	
DT21E196		1		1		I/O BUS DRIVER-B SCHEMATIC	
COMPUTERVISION CORP.		BEDFORD, MASS. 01730		NO. DS21E287		SHT 1 OF 1 SHTS	

### 128/32K A/B-Port Memory Unit

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Bus Logic	5
Memory Address Logic	5
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I/O Logic	7
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DA21E250-X CONFIGURATION TABLE

	SINGLE PORT	DUAL PORT, DISTRIBUTED MODE	DUAL PORT, GPU MODE	SINGLE PORT 32K
POPULATED WITH 4K RAMS (MK 4027-3)	USE CONFIGURATION BLOCKS A,A1,B	USE CONFIGURATION BLOCKS A,A1,C,D,E	USE CONFIGURATION BLOCKS A,C,D,E	
POPULATED WITH 16K RAMS (MK 4118-3)	DA21E250-02 USE CONFIGURATION BLOCKS B,F	DA21E250-01 USE CONFIGURATION BLOCKS O,E,F,G	DA21E250-01 USE CONFIGURATION BLOCKS E,F,H	DA21E250-03 USE CONFIGURATION BLOCKS A1

CONFIGURATION BLOCK A) 32K HARDWARE CONFIGURATION (USING 4K RAMS)

- 1) REMOVE R22
- 2) ADJUST POT R31 SUCH THAT TP HAS A 29  $\mu$ S REP RATE
- 3) INSERT JUMPERS: JP9-2, JP11-2, JP13-2
- 4) POPULATE MEMORY ARRAY WITH MK4027-3 MEMORY CHIPS

CONFIGURATION BLOCK A1) APORT 32K ADDRESSING CHART

*APORT FIELD	AMC0	AMC1	AMC2	AMC3	**CLOSED CONTACTS ON SWITCH PACK IV
0	H	H	H	H	8
1	H	H	H	L	7.8
2	H	H	L	H	6.8
3	H	H	L	L	8.7.8
4	H	L	H	H	5.8
5	H	L	H	L	5.7.8
6	H	L	L	H	5.8.6
7	H	L	L	L	5.8.7.8
8	L	H	H	H	4.8
9	L	H	H	L	4.7.8
10	L	H	L	H	4.6.8
11	L	H	L	L	4.6.7.8
12	L	L	H	H	4.5.6
13	L	L	H	L	4.5.7.6
14	L	L	L	H	4.5.6.8
15	L	L	L	L	4.5.6.7.8

- \* EACH FIELD NO. REPRESENTS ONE 32K SEGMENT OF MEMORY  
 \*\* ALL OTHER CONTACTS ON SWITCH PACK IV OPEN

CONFIGURATION BLOCK B) SINGLEPORT CONFIGURATION

- 1) DEPOPULATE PC BOARD AS PER BM21E250-02
- 2) ADD JUMPERS JP3, JP5, JP7

CONFIGURATION BLOCK C) BPORT 32K MEMORY ROW SELECT

- 1) INSERT JUMPERS: JP10-2, JP12-2, JP14-2

CONFIGURATION BLOCK D) BPORT 32K ADDRESSING AND I/O DEVICE CODE CHART

*BPORT FIELD OR I/O DEVICE CODE	BMC0 OR BDS0	BMC1 OR BDS1	BMC2 OR BDS2	BMC3 OR BDS3	**CLOSED CONTACTS ON SWITCH PACK 12S
0	H	H	H	H	6
1	H	H	H	L	4.6
2	H	H	L	H	3.6
3	H	H	L	L	3.4.8
4	H	L	H	H	2.8
5	H	L	H	L	2.4.6
6	H	L	L	H	2.3.6
7	H	L	L	L	2.3.4.8
8	L	H	H	H	1.8
9	L	H	H	L	1.4.6
10	L	H	L	H	1.3.8
11	L	H	L	L	1.3.4.6
12	L	L	H	H	1.2.6
13	L	L	H	L	1.2.4.8
14	L	L	L	H	1.2.3.8
15	L	L	L	L	1.2.3.4.8

- \* EACH FIELD NO. REPRESENTS ONE 32K SEGMENT OF MEMORY  
 \*\* ALL OTHER CONTACTS ON SWITCH PACK 12S AND 9C OPEN

CONFIGURATION BLOCK E) LAST BOARD IN DAISY CHAIN

THE LAST DUAL PORT MEMORY BOARD IN A DAISY CHAIN MUST TERMINATE BPORT BUS SIGNALS. THE LAST DUAL PORT MEMORY IN A DAISY CHAIN ONLY MUST HAVE THE FOLLOWING RESISTORS: RP8, RP7, RP8, RP12, RES PACK 12F

CONFIGURATION BLOCK F) 128K HARDWARE CONFIGURATION/APORT 128K ADDRESSING M

- 1) R20 AND R22 INSERTED
- 2) INSERT JUMPER JP4
- 3) ADJUST POT R31 SUCH THAT TP HAS A 14.5  $\mu$ S REP RATE
- 4) INSERT JUMPERS JP8, JP11, JP13
- 5) POPULATE MEMORY ARRAY WITH MK4118-3 MEMORY CHIPS
- 6) APORT 128K ADDRESSING CHART

*APORT FIELD NO.	AMC0	AMC1	AMC2	AMC3	AMC3	**CLOSED CONTACTS ON SWITCH PACK IV
D.1,2,3	H	H	H	H	H	
4,5,6,7	H	H	H	H	L	6
8,9,10,11	H	H	H	L	H	4
12,13,14,15	H	H	H	L	L	4.5
16,17,18,19	H	H	L	H	H	3
20,21,22,23	H	H	L	H	L	3.5
24,25,26,27	H	H	L	L	H	3.4
28,29,30,31	H	H	L	L	L	3.4.5
32,33,34,35	H	L	H	H	H	2
36,37,38,39	H	L	H	H	L	2.5
40,41,42,43	H	L	H	L	H	2.4
44,45,46,47	H	L	H	L	L	2.4.5
48,49,50,51	H	L	L	H	H	2.3
52,53,54,55	H	L	L	H	L	2.3.5
56,57,58,59	H	L	L	L	H	2.3.4
60,61,62,63	H	L	L	L	L	2.3.4.5
64,65,66,67	L	H	H	H	H	1
68,69,70,71	L	H	H	H	L	1.5
72,73,74,75	L	H	H	L	H	1.4
76,77,78,79	L	H	H	L	L	1.4.5
80,81,82,83	L	H	L	H	H	1.3
84,85,86,87	L	H	L	H	L	1.3.5
88,89,90,91	L	H	L	L	H	1.3.4
92,93,94,95	L	H	L	L	L	1.3.4.5
96,97,98,99	L	L	H	H	H	1.2
100,101,102,103	L	L	H	H	L	1.2.5
104,105,106,107	L	L	H	L	H	1.2.4
108,109,110,111	L	L	H	L	L	1.2.4.5
112,113,114,115	L	L	L	H	H	1.2.3
116,117,118,119	L	L	L	H	L	1.2.3.5
120,121,122,123	L	L	L	L	H	1.2.3.4
124,125,126,127	L	L	L	L	L	1.2.3.4.5

- \* EACH FIELD NO. REPRESENTS ONE 32K SEGMENT OF MEMORY  
 (TO EXPAND BEYOND 16 FIELDS, IC 2X AND 2V, SHT.7, MUST BE ADDED)  
 \*\* ALL OTHER SWITCH CONTACTS ON SWITCH IV ARE OPEN

CONFIGURATION BLOCK G) 128K APORT/32K BPORT COMMON MEMORY

WITH JUMPERS JP10, JP12, JP14, INSERTED

BMC2	BMC3	COMMON SEGMENT OF APORT 128K MEMORY
H	H	1ST 32K
H	L	2ND 32K
L	H	3RD 32K
L	L	4TH 32K

- 2) TO FORCE COMMON APORT/BPORT MEMORY INDEPENDENT OF BMC2 AND BMC3

BMC2	BMC3	COMMON SEGMENT OF APORT 128K MEMORY	JUMPERS INSERTED
X	X	1ST 32K	JP10, JP15, JP18
X	X	2ND 32K	JP1D, JP18
X	X	3RD 32K	JP10, JP15
X	X	4TH 32K	JP10

WHERE X = DONT CARE

CONFIGURATION BLOCK H) BPORT 128K ADDRESSING CONFIGURATION

- 1) INSERT JUMPERS JP10, JP12, JP14
- 2) BPORT 128K ADDRESSING CHART

BPORT FIELD NO.	BMAD0	BMAD1	BMAD2	BMC0	BMC1	**CLOSED CONTACTS ON SWITCH PACKS
						9C 12S
0,1,2,3	H	H	H	H	H	8
4,5,6,7	H	H	H	H	L	2.6
8,9,10,11	H	H	H	L	H	1.8
12,13,14,15	H	H	H	L	L	1.2.8
16,17,18,19	H	H	L	H	H	7
20,21,22,23	H	H	L	H	L	7
24,25,26,27	H	H	L	L	H	7
28,29,30,31	H	H	L	L	L	7
32,33,34,35	H	L	H	H	H	8
36,37,38,39	H	L	H	H	L	8
40,41,42,43	H	L	H	L	H	8
44,45,46,47	H	L	H	L	L	8
48,49,50,51	H	L	L	H	H	8.7
52,53,54,55	H	L	L	H	L	8.7
56,57,58,59	H	L	L	L	H	8.7
60,61,62,63	H	L	L	L	L	8.7
64,65,66,67	L	H	H	H	H	6
68,69,70,71	L	H	H	H	L	6
72,73,74,75	L	H	H	L	H	6
76,77,78,79	L	H	H	L	L	6
80,81,82,83	L	H	L	H	H	6.7
84,85,86,87	L	H	L	H	L	6.7
88,89,90,91	L	H	L	L	H	6.7
92,93,94,95	L	H	L	L	L	6.7
96,97,98,99	L	L	H	H	H	5.8
100,101,102,103	L	L	H	H	L	5.8
104,105,106,107	L	L	H	L	H	5.8
108,109,110,111	L	L	H	L	L	5.8
112,113,114,115	L	L	L	H	H	5.8.7
116,117,118,119	L	L	L	H	L	5.8.7
120,121,122,123	L	L	L	L	H	5.8.7
124,125,126,127	L	L	L	L	L	5.8.7

- EACH FIELD NO. REPRESENTS ONE 32K SEGMENT OF MEMORY  
 ALL OTHER CONTACTS ON SWITCH PACK 12S AND 9C OPEN  
 (9C-2 MAY BE CLOSED TO DISABLE APORT)

CONFIGURATION BLOCK I) 32K SINGLE PORT CONFIGURATION (USING 16K RAMS)

- 1) DEPOPULATE BOARDS AS PER ASSEMBLY DA21E250-03

MISCELLANEOUS JUMPERS

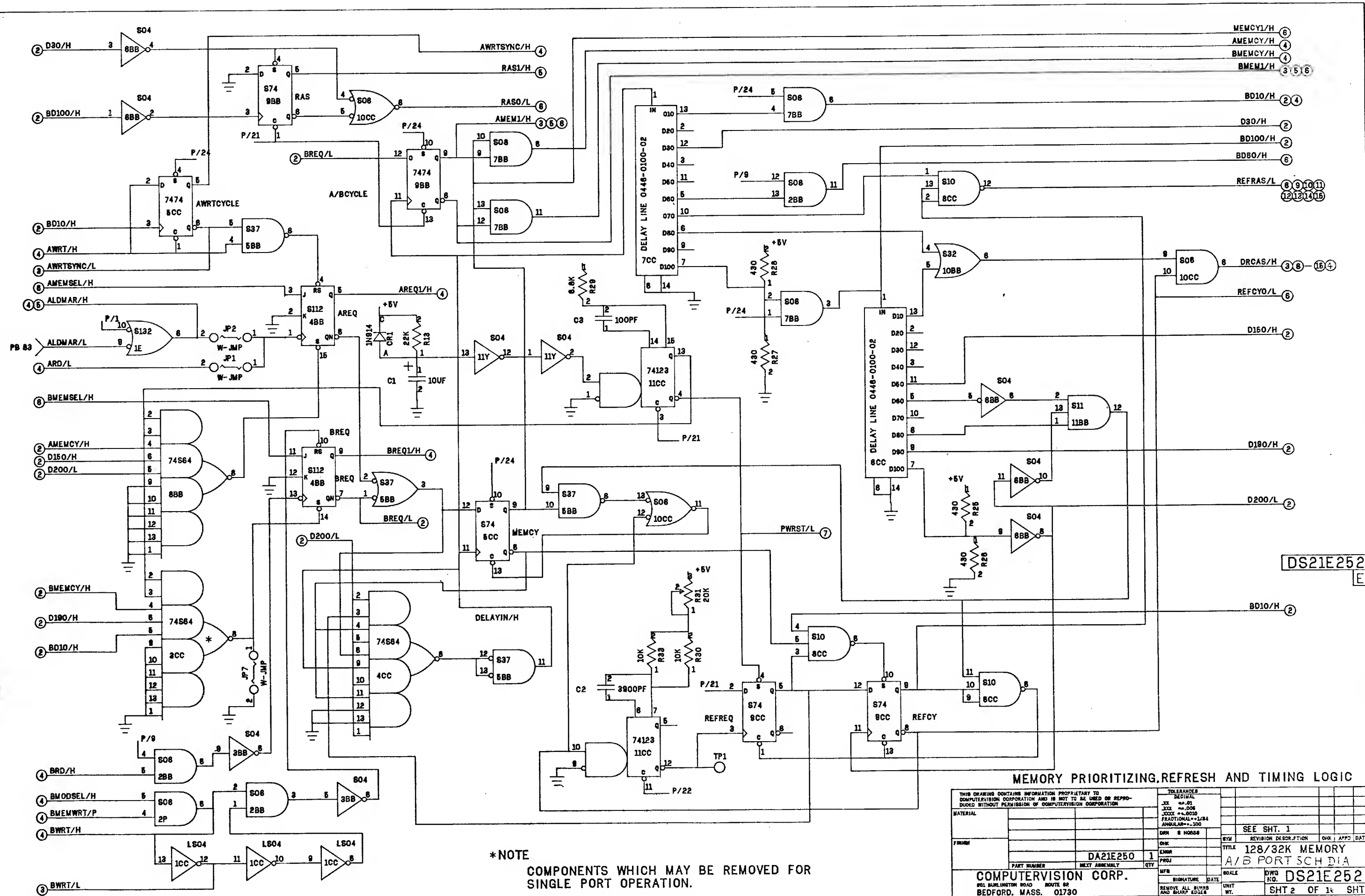
- 1) FOR LDMAR STARTING APORT MEMORY CYCLE INSERT JP-2
- 2) FOR MEMREAD STARTING APORT MEMORY CYCLE INSERT JP-1
- 3) FOR GPU MODE REQUIRING DISABLED APORT, CLDSE SWITCH 8C-2
- 4) APORT MUC/NON MUC OPERATION

JUMPER PLUG 4D	
MUC OPERATION	1-18 2-15 3-14 4-13
NON MUC OPERATION	5-12 6-11 7-10 8-9

- 5) APORT I/O DEVICE CODE

- 1) STANDARD 24<sub>g</sub>, INSERT JP8 FOR 25<sub>g</sub>

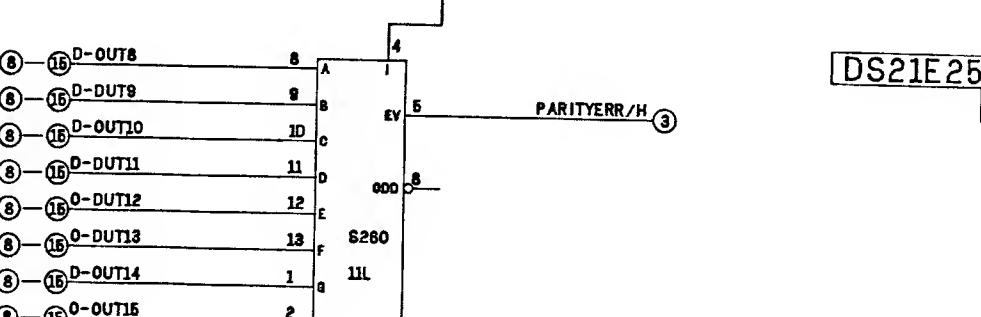
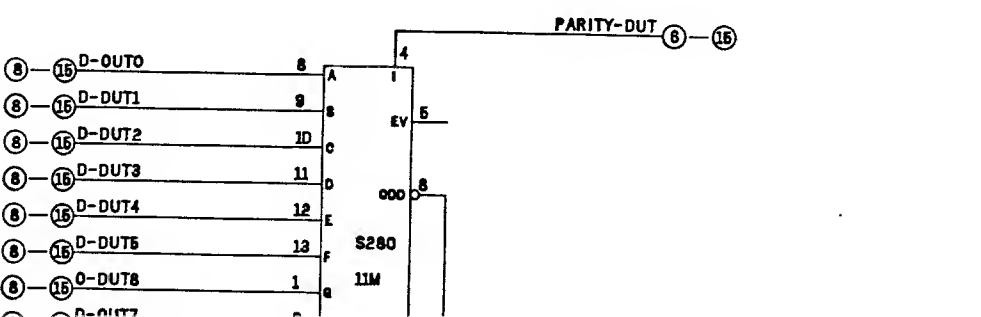
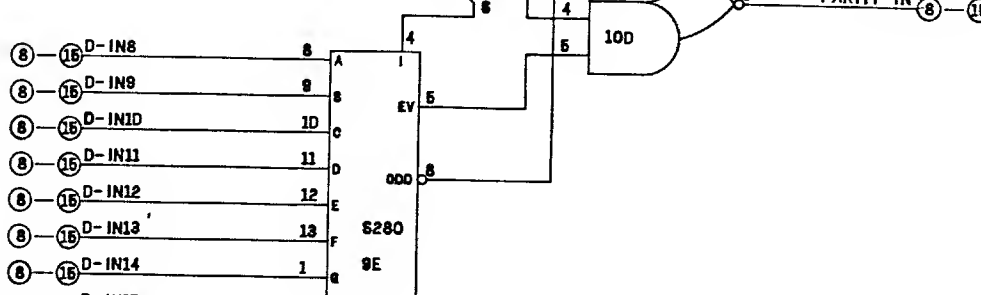
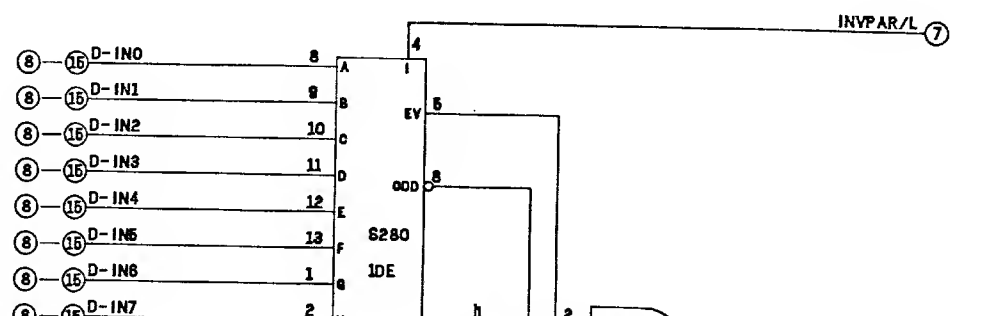
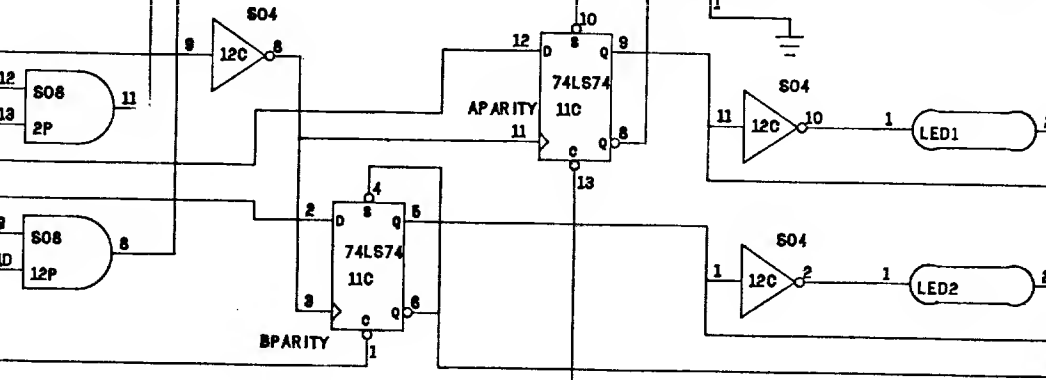
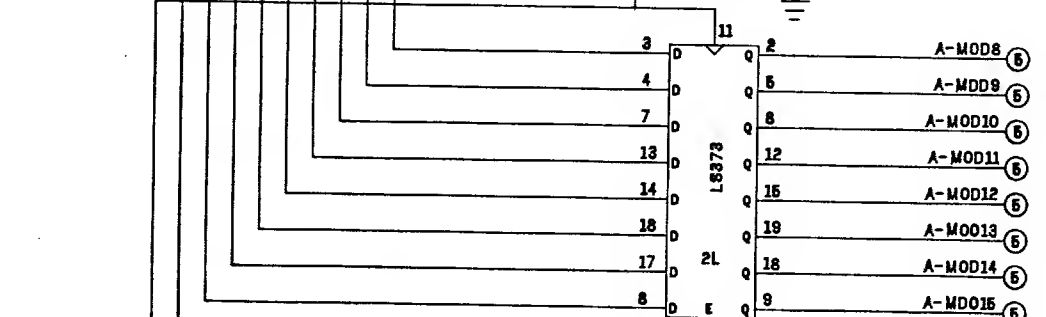
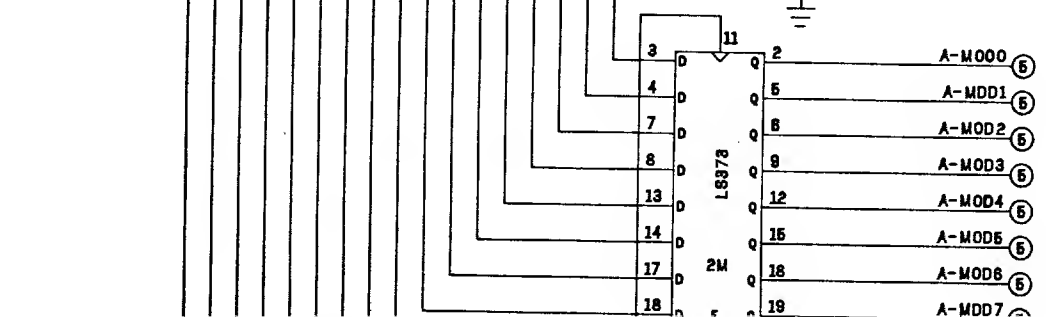
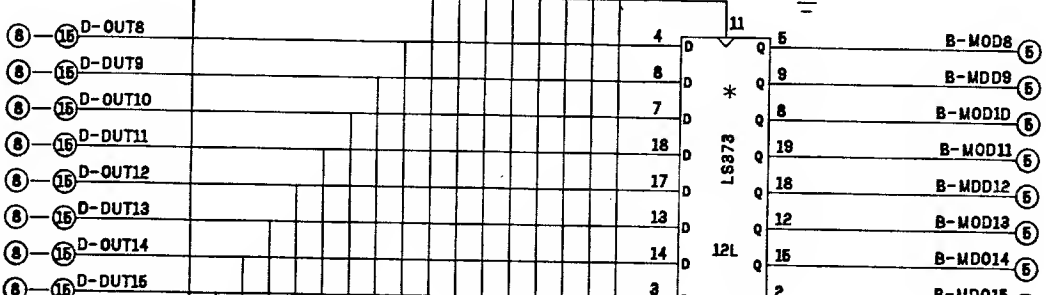
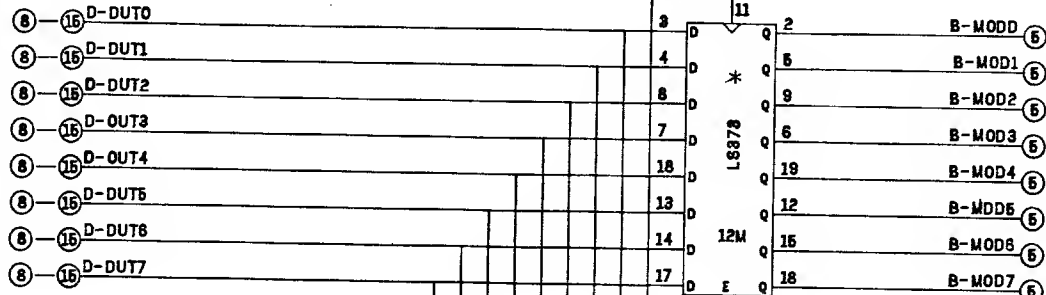
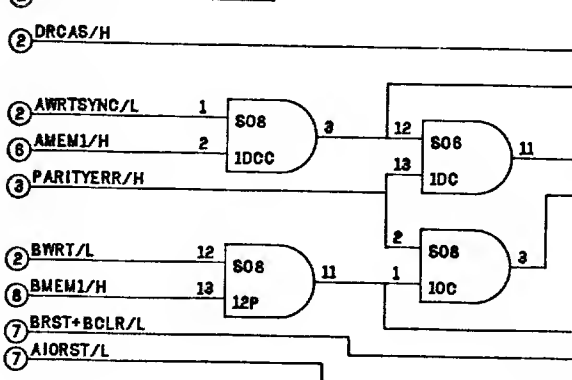
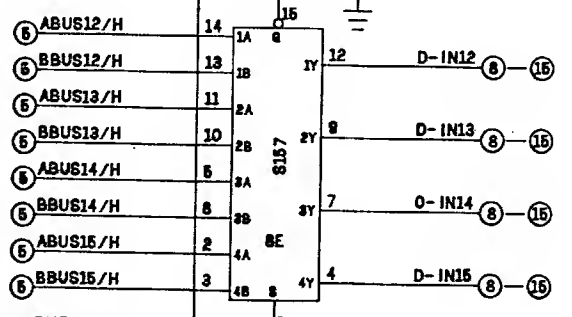
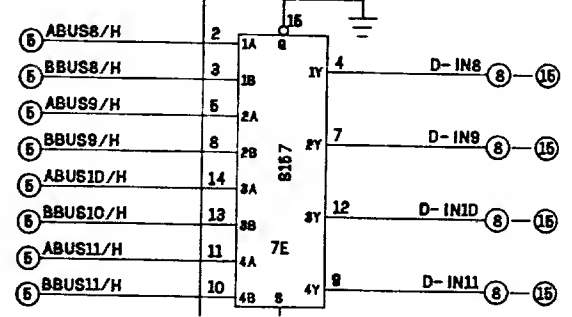
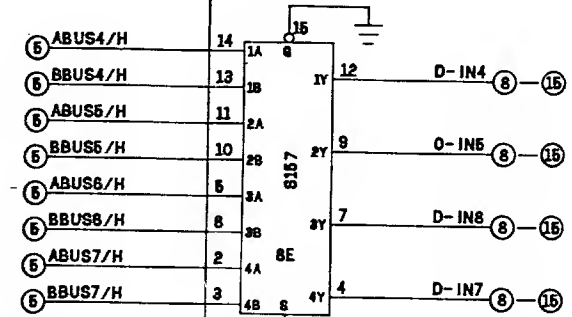
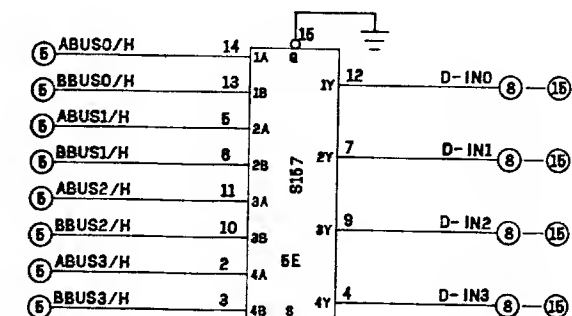
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MATERIAL		DRN 8 HOBBS	BYN	REVISION DESCRIPTION	D-B / APPD DATE
FINISH		ONE	DATE	TITLE	
		ENGR	DATE	128/32K MEMORY	
		PROJ	DATE	ABPORT SCH. 3 AGRAM	
PART NUMBER	DA21E250	QTY	1	DS21E252	
COMPUTERVISION CORP.			SHT 1 OF 16 SHTS		
200 BURLINGTON ROAD BEDFORD, MASS. 01730					



\* NOTE  
COMPONENTS WHICH MAY BE REMOVED FOR  
SINGLE PORT OPERATION.

MEMORY PRIORITIZING, REFRESH AND TIMING LOGIC

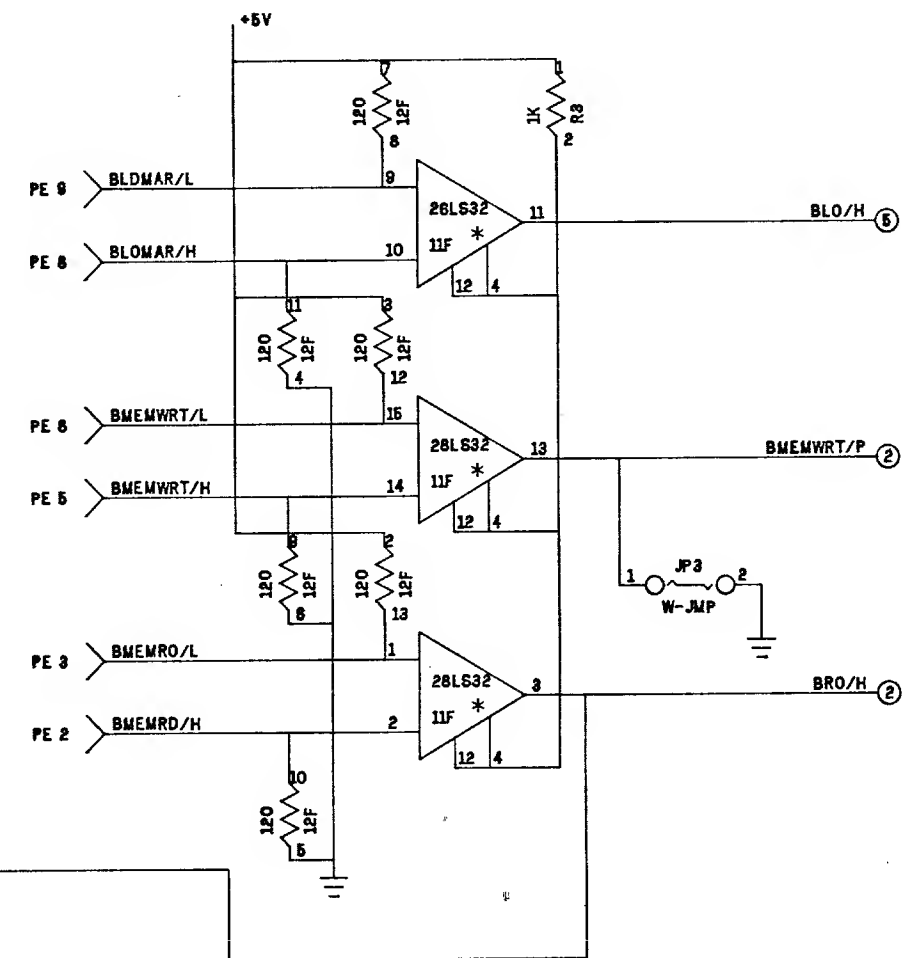
THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO COMPUTERVISION CORPORATION AND IS NOT TO BE USED OR REPRO- DUCED WITHOUT PERMISSION OF COMPUTERVISION CORPORATION				TOLERANCES DECIMAL XX .01 XXX .005 XXXX .0010 FRACTIONAL 1/32 ANGULAR .100												
MATERIAL				DRN	8	NOB88										
FINISH				CHK				67W	REVISION DESCRIPTION		CHK	APP'D	DATE			
								TITLE	128/32K MEMORY							
								A/B PORT SCH DIA								



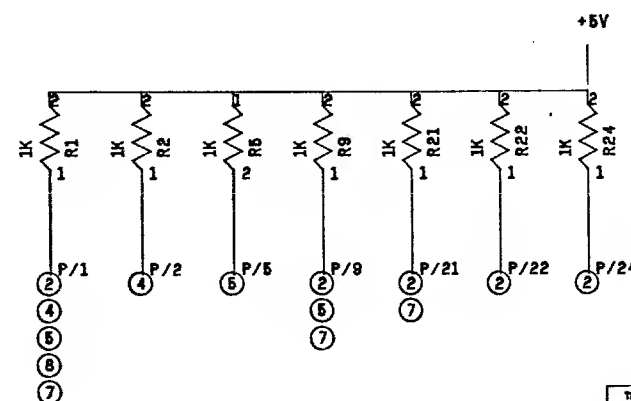
\*NOTE:  
COMPONENTS WHICH MAY BE REMOVED  
FOR SINGLE PORT OPERATION.

DATA IN MUX.DATA OUT LATCH.PARITY LOGIC

THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO COMPUTERVISION CORPORATION AND IS NOT TO BE USED OR REPRO- DUCED WITHOUT PERMISSION OF COMPUTERVISION CORPORATION		TOLERANCES DECIMAL XX .01 XXX .005 XXXX .001 FRACTIONAL 1/64 ANGULAR .100		SEE SHT. 1	
MATERIAL		QTY	REV	REV	DATE
FINISH		QTY	REV	REV	DATE
PART NUMBER	DA21E250	QTY	REV	REV	DATE
COMPUTERVISION CORP.		SCALE		DWG NO. DS21E252	
101 BURLINGTON ROAD ROUTE 62 BEDFORD, MASS. 01730		UNIT		SHT 3 OF 16 SHTS	

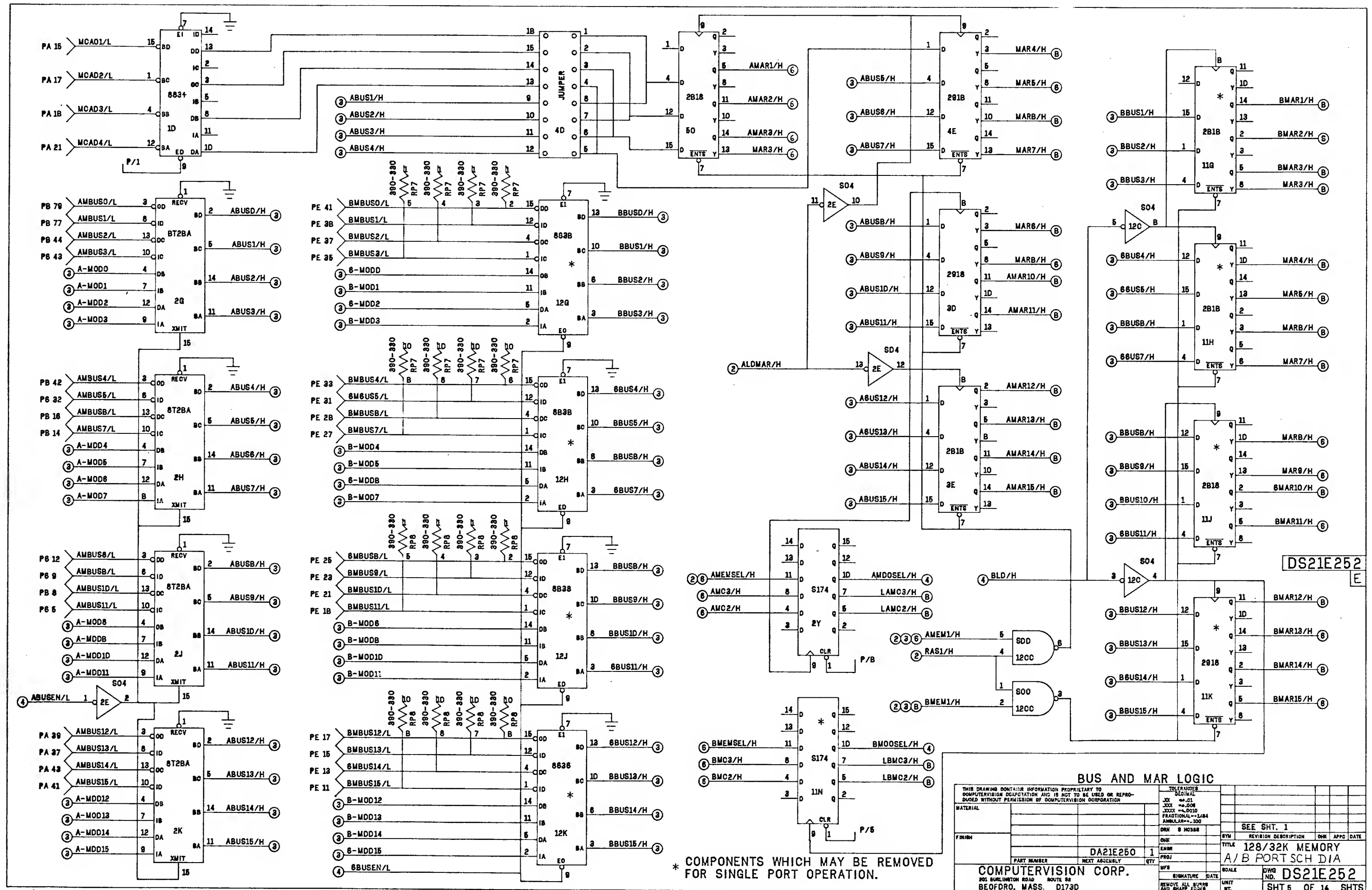


1



COMPONENTS WHICH MAY BE REMOVED  
FOR SINGLE PORT OPERATION.

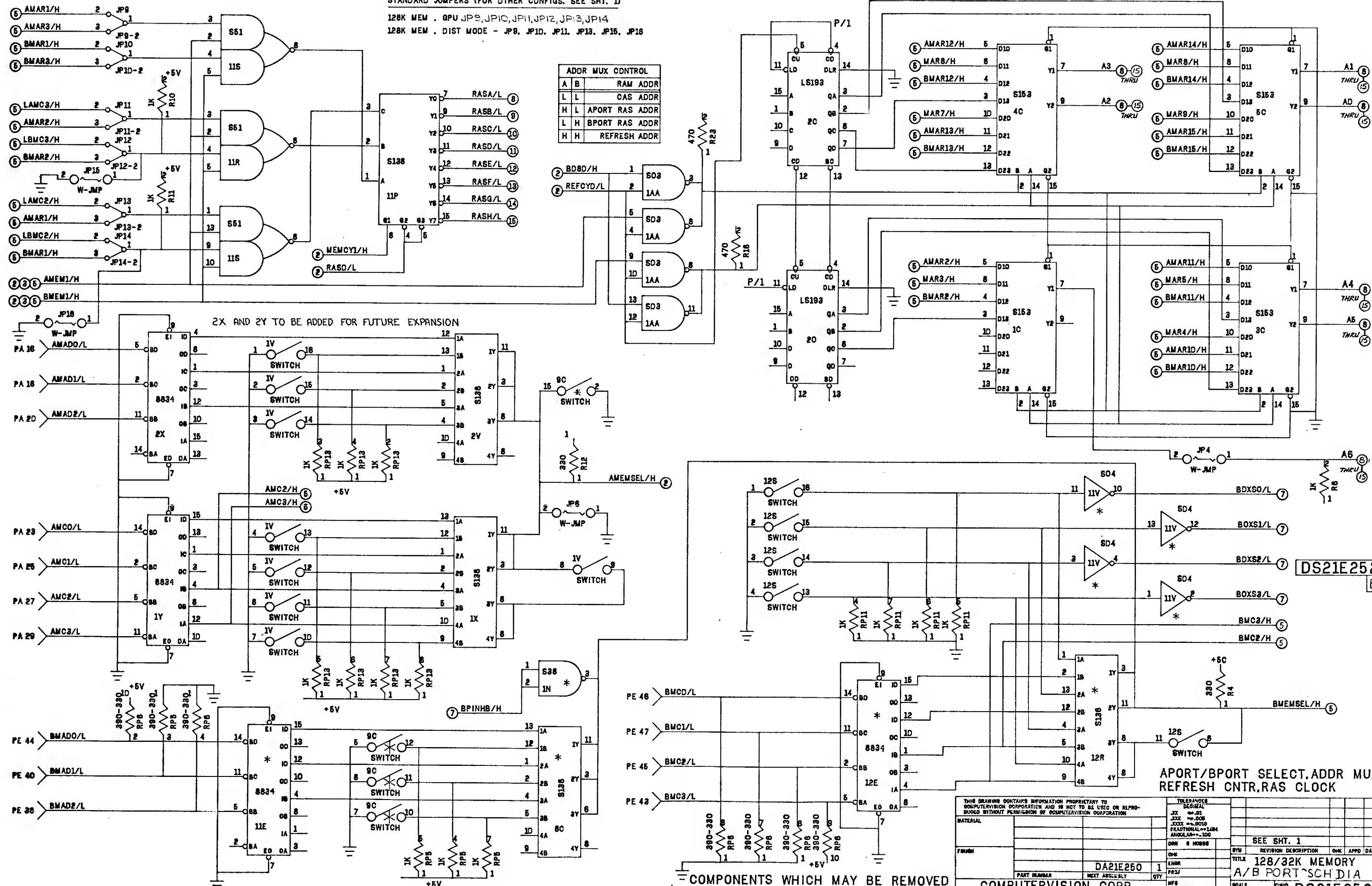
THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO COMPUTERVISION CORPORATION AND IS NOT TO BE USED OR REPRODUCED WITHOUT PERMISSION OF COMPUTERVISION CORPORATION						TOLERANCES DECIMAL XX ±.01 XXX ±.008 XXXX ±.010 FRACTIONAL ±1/64 ANGULAR ±.100	
MATERIAL						SEE SHT. 1	
FINISH				DIN 9 HDBS		SYM	REVISION DESCRIPTION OKK APPD DATE
			DA21E250 1	ENGR	TITLE	128/32K MEMORY	
				PROJ	A / B PORT SCH DIA		
	PART NUMBER	NEXT ASSEMBLY	QTY	MFG	SCALE	DWG NO.	DS21E252
COMPUTERVISION CORP. 801 BURLETON ROAD ROUTE 62 BEDFORD, MASS. 01730						SIGNATURE DATE	SHT 4 OF 16 SHTS
						REMOVE ALL SURF AND SHAFT MARKS	
						UNIT	





STANDARD JUMPERS (FOR OTHER CNFIGS. SEE SHT. 1)  
 128K MEM . GPU JPS,JPIC,JP11,JP12,JP13,JP14  
 128K MEM . DIST MODE - JP9,JP10,JP11,JP13,JP15,JP18

ADDR MUX CONTROL		
A	B	RAM ADDR
L	L	CAS ADDR
H	L	A PORT RAS ADDR
L	H	B PORT RAS ADDR
H	H	REFRESH ADDR



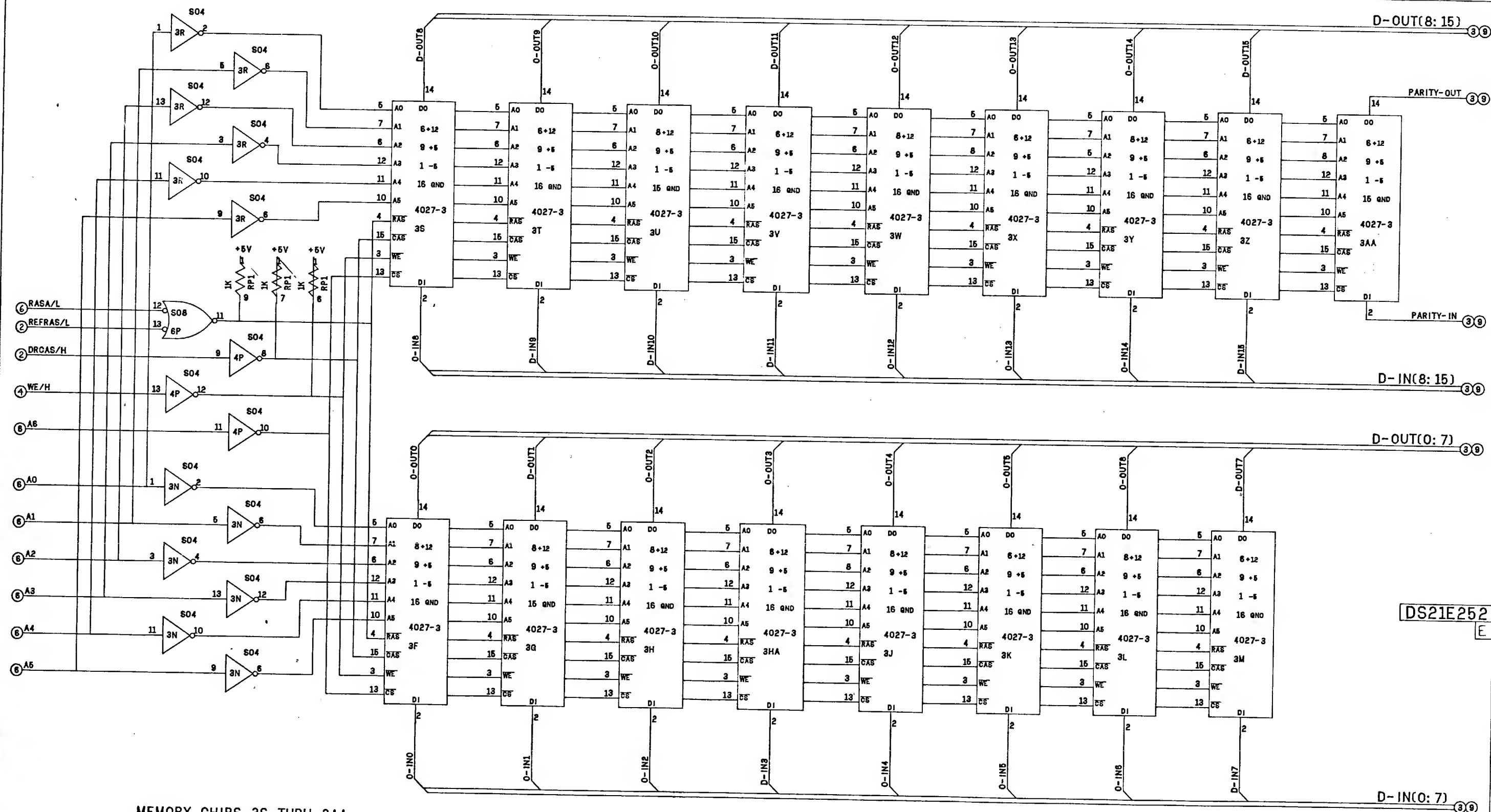
\* COMPONENTS WHICH MAY BE REMOVED FOR SINGLE PORT OPERATION.

THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO COMPUTATION CORPORATION AND IS NOT TO BE USED OR REPRODUCED WITHOUT PERMISSION OF COMPUTATION CORPORATION		TOLERANCES UNLESS SPECIFIED		SEE SHT. 1	
MATERIAL		XX .01	XX .005	XX .001	XX .0005
FINISH		XX .001	XX .0005	XX .0001	XX .00005
PART NUMBER	DA21E250	QTY	1	DATE	01/01/80
COMPUTATION CORP.		UNIT	WT.	NO.	DS21E252
801 BURLINGTON ROAD, SUITE 200		UNIT	WT.	NO.	SHT 8 OF 16 SHTS
BEDFORD, MASS. 01730		UNIT	WT.	NO.	





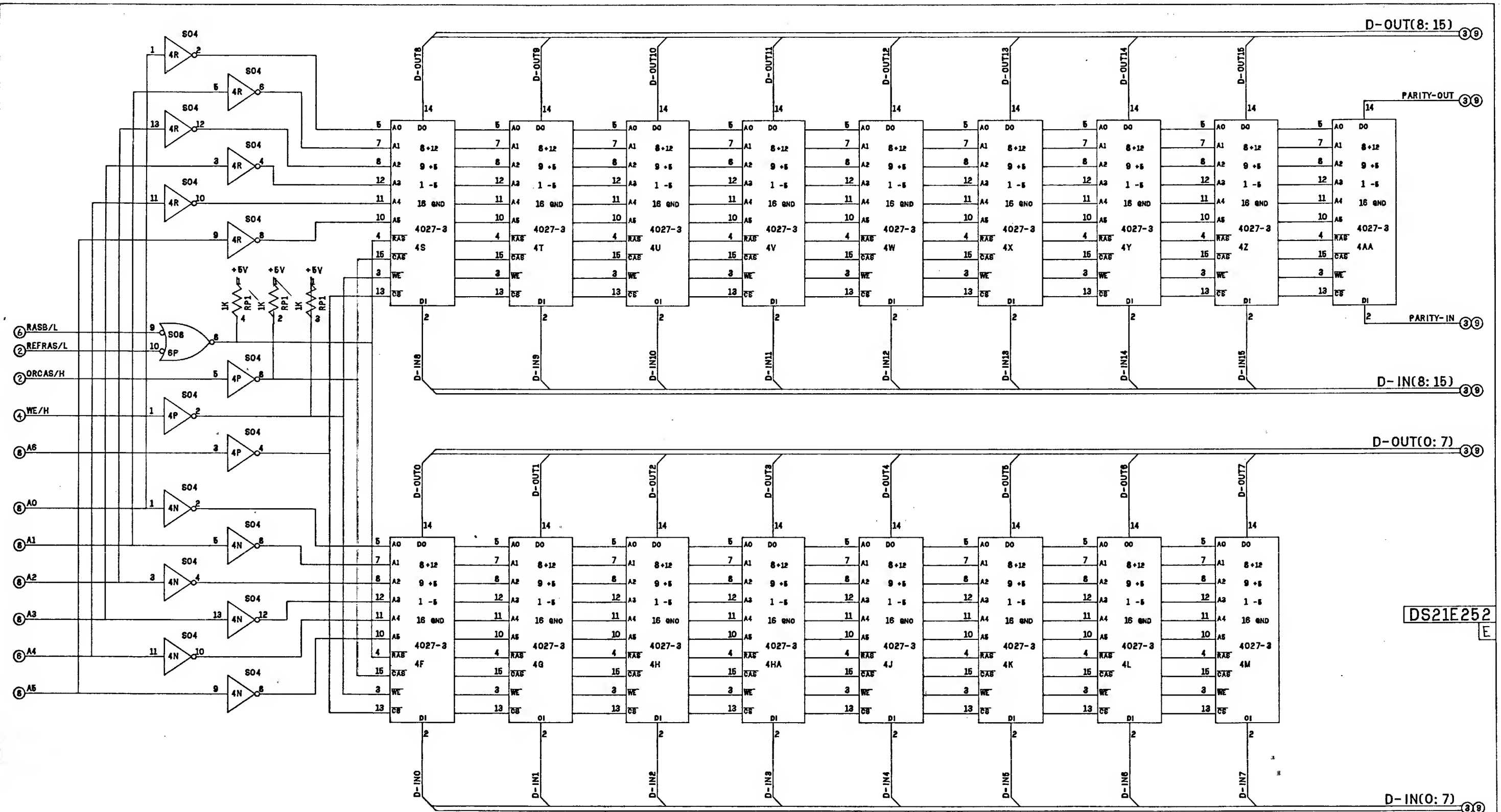
THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO COMPUTERVERSION CORPORATION AND IS NOT TO BE USED OR REPRODUCED WITHOUT PERMISSION OF COMPUTERVERSION CORPORATION					TOLERANCES DECIMAL XX =+.01 JXXX =+.008 JXXXX =+.0010 FRACTIONAL=+/-.004 ANGULAR=+.100									
MATERIAL						DEN & HOBBS	SYM	REVISION DESCRIPTION	CHK	APPRO DATE				
FINISH						QWK	TITLE 128/ 32K MEMORY A/B PORT SCHEM.DIAGRAM							
				DA2IE250	1	ENGR								
				PART NUMBER	NEXT ASSEMBLY	PROJ								
COMPUTERVERSION CORP.					QTY	MFG	SCALE	DWG NO.	DS2IE252					
801 BURLINGTON ROAD ROUTE 82 BEDFORD, MASS. 01730						SIGNATURE DATE	UNIT WT.	SHT 7 OF 16 SHTS						
						REMOVE ALL BURRS AND SHARP EDGES								



MEMORY CHIPS 3S THRU 3AA  
AND 3F THRU 3M MAY BE  
EITHER ALL 4027-3 OR  
4116-3 PARTS

DS21E252  
E

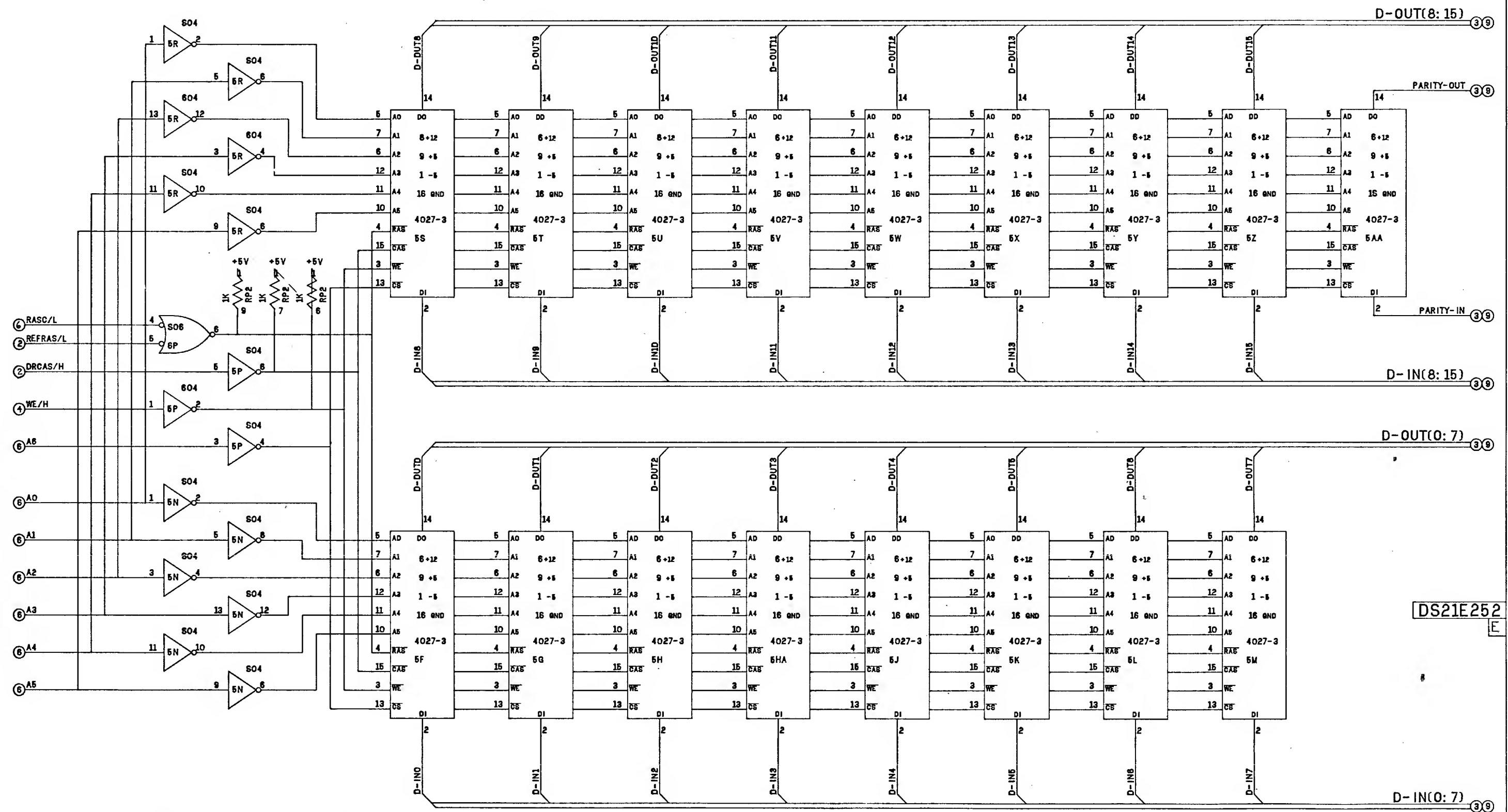
THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO COMPUTERVISION CORPORATION AND IS NOT TO BE USED OR REPRODUCED WITHOUT PERMISSION OF COMPUTERVISION CORPORATION				TOLERANCES DIMENSIONAL XX .XX XXX .XX XXXX .XX FRACTIONAL .XX ANGULAR .XX				REVISION DESCRIPTION			
MATERIAL				DRN 8 HOBBS				SEE SHT. 1			
FINISH				ENGR				TITLE			
PART NUMBER				DA21E250				128/32K MEMORY A/B PORT SCHEM. DIAGRAM			
NEXT ASSEMBLY				QTY				DS21E252			
COMPUTERVISION CORP.				SIGNATURE DATE				SHT 6 OF 16 SHTS			
401 BURLINGTON ROAD ROUTE 82 BEDFORD, MASS. 01730				SCALE				UNIT			
REMOVE ALL BURRS AND SHARP EDGES				WT.							



MEMORY CHIPS 4S THRU 4AA  
AND 4F THRU 4M MAY BE  
EITHER ALL 4027-3 OR  
4116-3 PARTS

DS21E252  
E

COMPUTERVISION CORP.				MEMORY ROW B			
THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO COMPUTERVISION CORPORATION AND IS NOT TO BE USED OR REPRO- DUCED WITHOUT PERMISSION OF COMPUTERVISION CORPORATION				TOLERANCES DIM. IN DECIMAL XX .XX .XX XXX .XXX .XXX FRACTIONAL .XX/100 ANGLES .XX° .XX'			
MATERIAL				SEE SHT. 1			
FORM				BYN REVISION DESCRIPTION ENK APPD DATE			
DA21E250 1				TITLE 128/32K MEMORY A/B PORT SCHEM. DIAGRAM			
PART NUMBER NEXT ASSEMBLY QTY				SCALE DWG NO. DS21E252			
COMPUTERVISION CORP. 200 BURLINGTON ROAD ROUTE 92 BEDFORD, MASS. 01730				SHT 9 OF 16 SHTS			

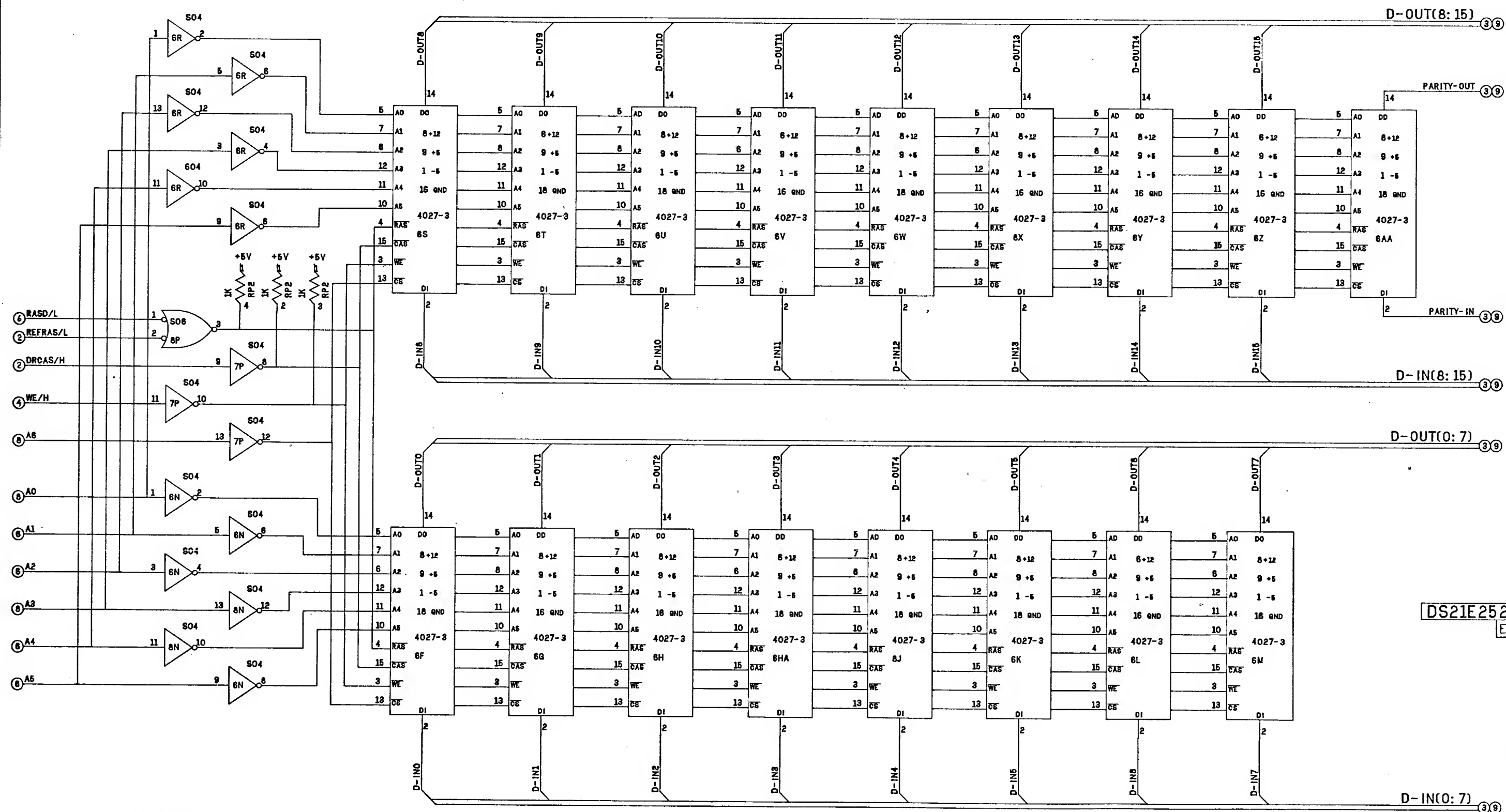


MEMORY CHIPS 5S THRU 5AA  
AND 5F THRU 5M MAY BE  
EITHER ALL 4027-3 OR  
4116-3 PARTS

DS21E252  
E

MEMORY ROW C

THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO COMPUTERVISION CORPORATION AND IS NOT TO BE USED OR REPRO- DUCED WITHOUT PERMISSION OF COMPUTERVISION CORPORATION		TOLERANCES DECIMAL XX .XX .01 XXX .XX .005 XXXX .XX .0010 FRACTIONAL = 1/16 ANGULAR = .100		SEE SHT. 1	
MATERIAL		DRN	S HOBBS	BY	REVISION DESCRIPTION
FINISH		CHK		ENGR	DATE
PART NUMBER	DA21E250	PROJ	1	TITLE	
COMPUTERVISION CORP.		UNIT		DWG NO. DS21E252	
801 BURLINGTON ROAD ROUTE 62 BEDFORD, MASS. 01730		REMOVE ALL BUBBLES AND BLANK EDGES		SHT 10 OF 16 SHTS	

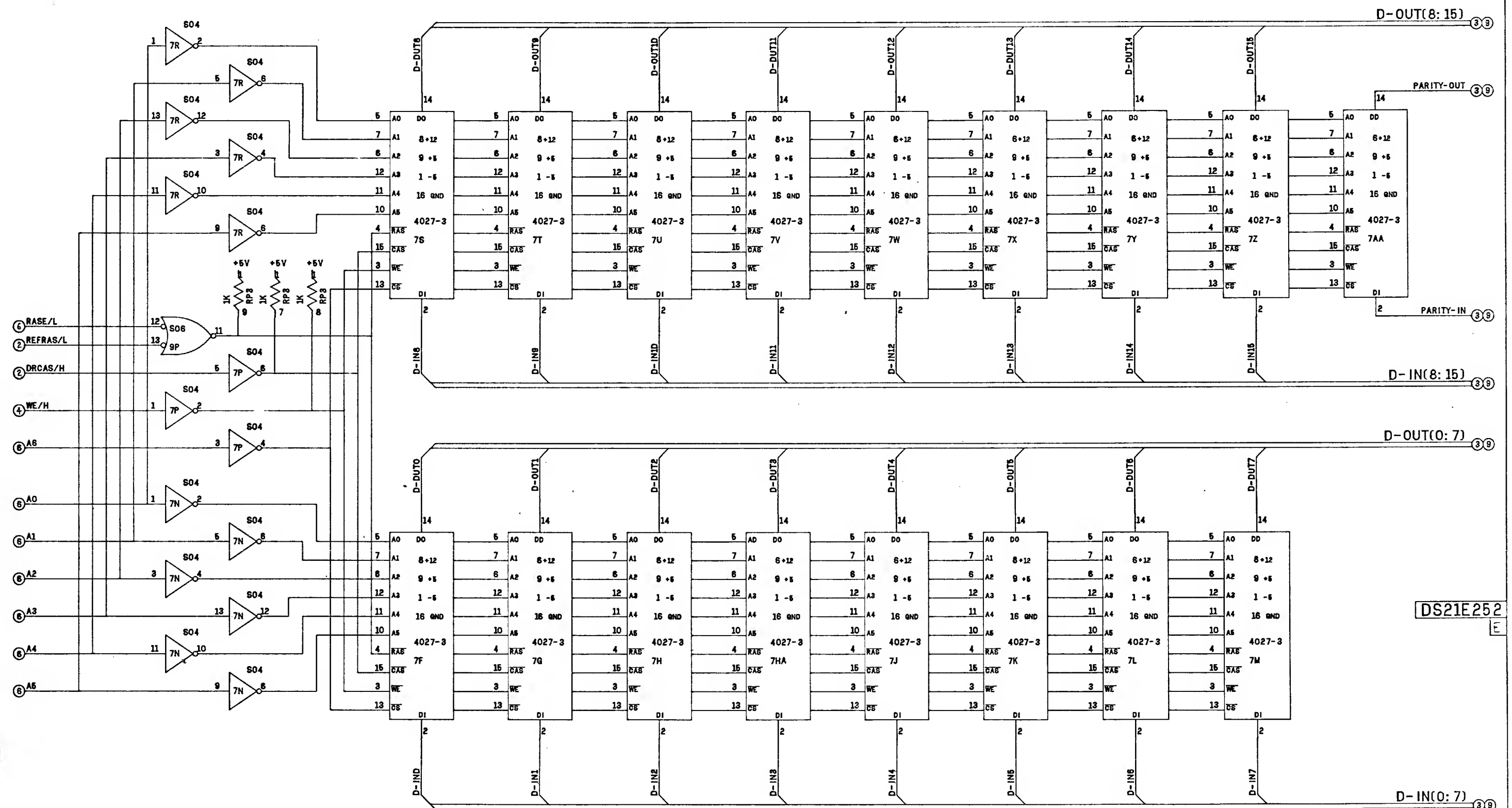


MEMORY CHIPS 6S THRU 6AA  
AND 6F THRU 6M MAY BE  
EITHER ALL 4027-3 OR  
4116-3 PARTS

DS21E252

E

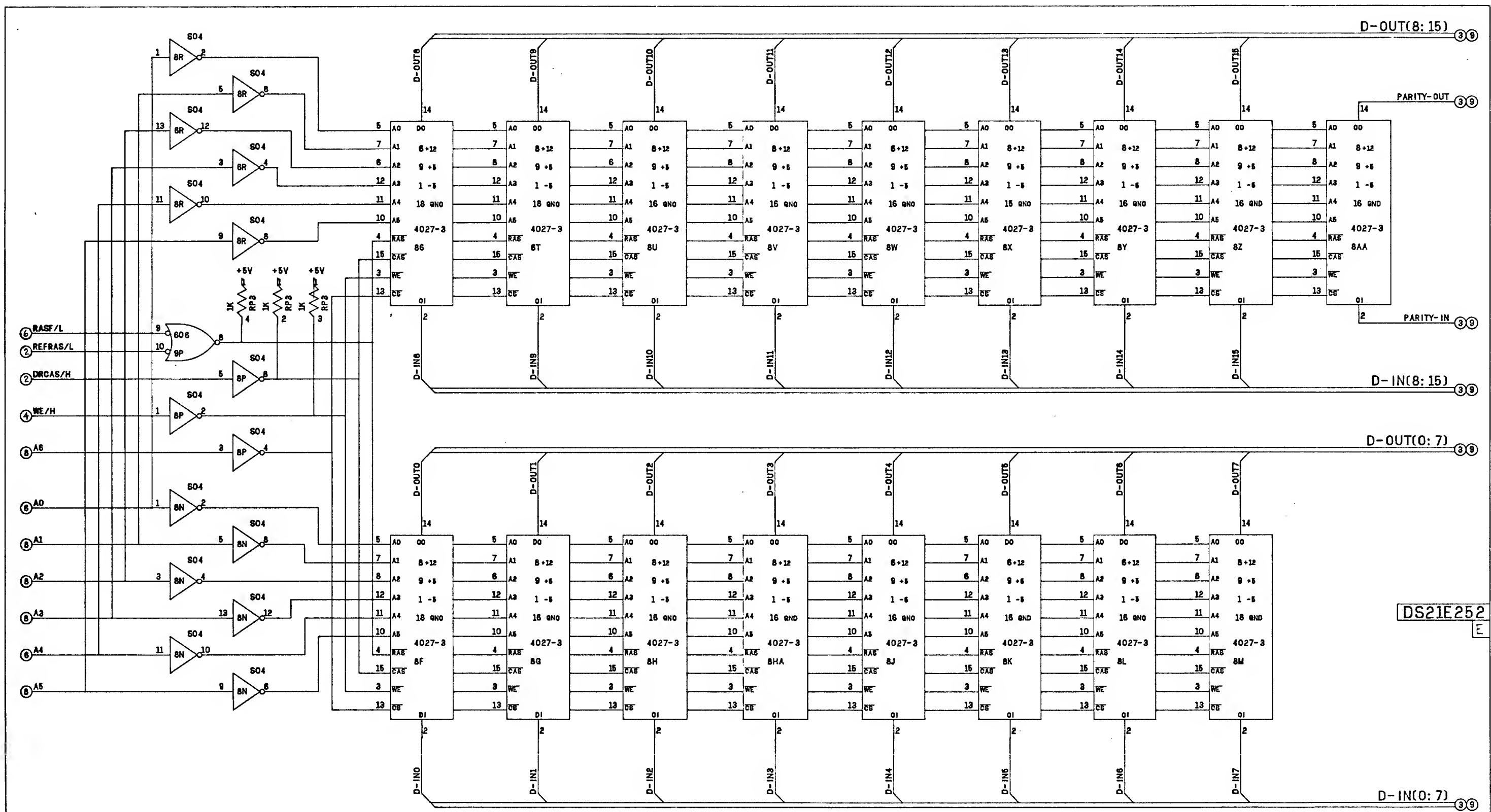
COMPUTERVISION CORP.				MEMORY ROW D			
THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO COMPUTERVISION CORPORATION AND IS NOT TO BE USED OR REPRODUCED WITHOUT PERMISSION OF COMPUTERVISION CORPORATION				TOLERANCES UNLESS OTHERWISE SPECIFIED			
MATERIAL				XX DECIMAL XXX .XX XXXX .XXX FRACTIONAL 1/16 ANGULAR 1/16			
FINISH				SEE SHT. 1			
PART NUMBER				DA21E250			
NEXT ASSEMBLY				1			
QTY				1			
SIGNATURE				DATE			
SCALE				DWG NO.			
UNIT				SHT 11 OF 16 SHTS			



MEMORY CHIPS 7S THRU 7AA  
AND 7F THRU 7M MAY BE  
EITHER ALL 4027-3 OR  
4116-3 PARTS

DS21E252  
E

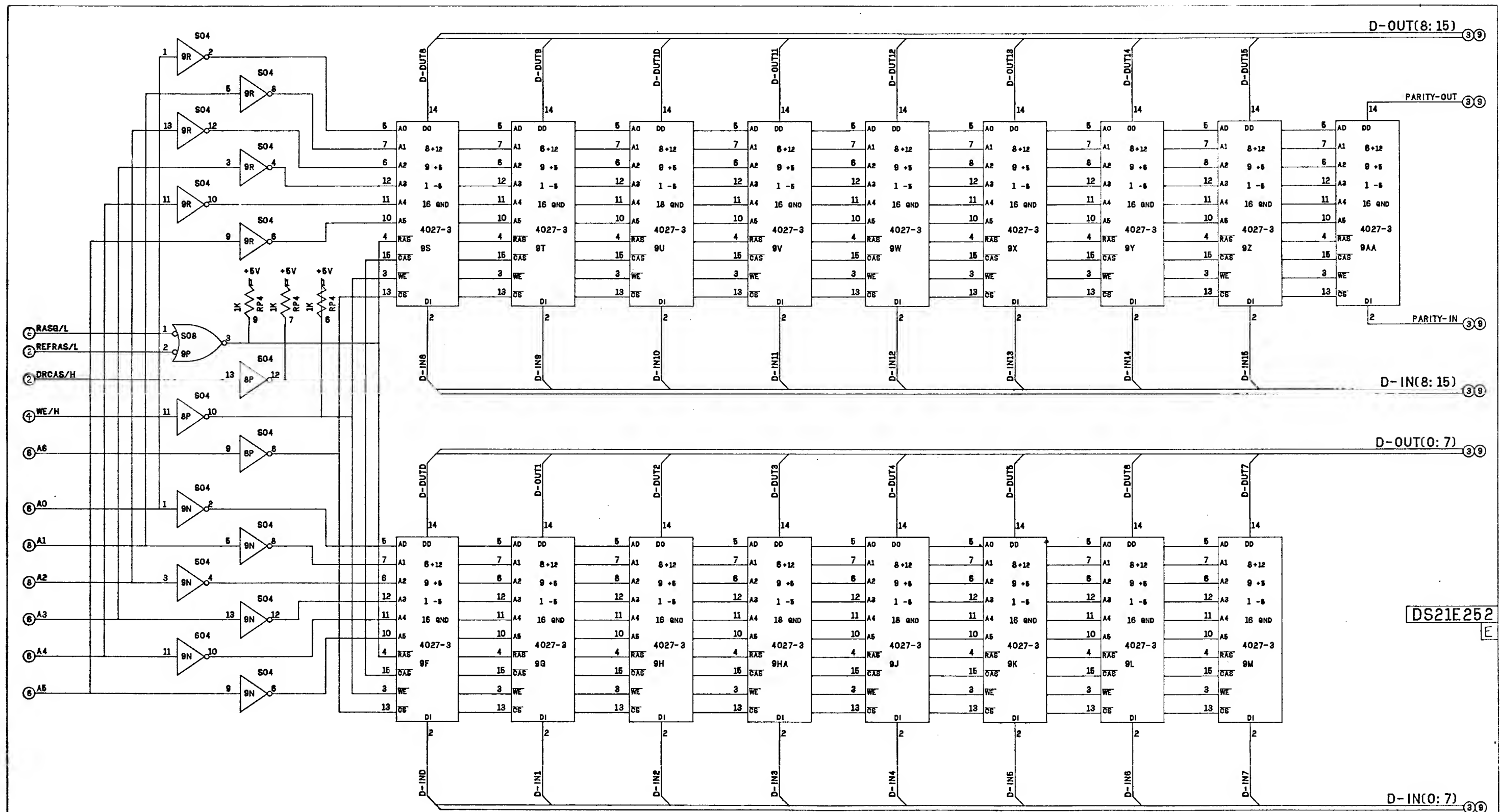
TOLERANCES				UNITS			
DIM				FRACTIONS			
DECIMAL				FRACTIONS			
XX .XX				XX/XX			
XXX .XX				XXX/XX			
XXXX .XX				XXXX/XX			
FRACTIONS				FRACTIONS			
ANGULAR				ANGULAR			
SEE SHT. 1				SEE SHT. 1			
TITLE				TITLE			
128/32K MEMORY				128/32K MEMORY			
A/B PORT SCH DIA				A/B PORT SCH DIA			
PART NUMBER				PART NUMBER			
DA21E250				DA21E250			
COMPUTERVISION CORP.				COMPUTERVISION CORP.			
100 BURLINGTON ROAD				100 BURLINGTON ROAD			
BEDFORD, MASS. 01730				BEDFORD, MASS. 01730			
SIGNATURE				SIGNATURE			
DATE				DATE			
REMOVE ALL DIMS				REMOVE ALL DIMS			
AND SHARP EDGES				AND SHARP EDGES			
UNIT				UNIT			
SHT 12 OF 16 SHTS				SHT 12 OF 16 SHTS			



MEMORY CHIPS 8S THRU 8AA  
AND 8F THRU 8M MAY BE  
EITHER ALL 4027-3 OR  
4116-3 PARTS

DS21E252  
E

THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO COMPUTERVISION CORPORATION AND IS NOT TO BE USED OR REPRO- DUCED WITHOUT PERMISSION OF COMPUTER VISION CORPORATION				TOLERANCES DECIMAL XX ±.01 XXX ±.005 XXXX ±.0025 FRACTIONAL ±1/64 ANGULAR ±.005		MEMORY ROW F	
MATERIAL				DRN	8 HOBBS	BYM	REVISION DESCRIPTION
FINISH				CHK		TITLE	128/32K MEMORY
				ENDR			A/B PORT SCH DIA
PART NUMBER	DA21E250	1	QTY	PROJ		SCALE	DWG NO. DS21E252
COMPUTERVISION CORP.				SIGNATURE DATE		SHT 13 OF 16 SHTS	
301 BURLINGTON RD. ROUTE 64 BEDFORD, MASS. 01730				REMOVE ALL BURRS AND CHAMF EDGES		UNIT WT.	

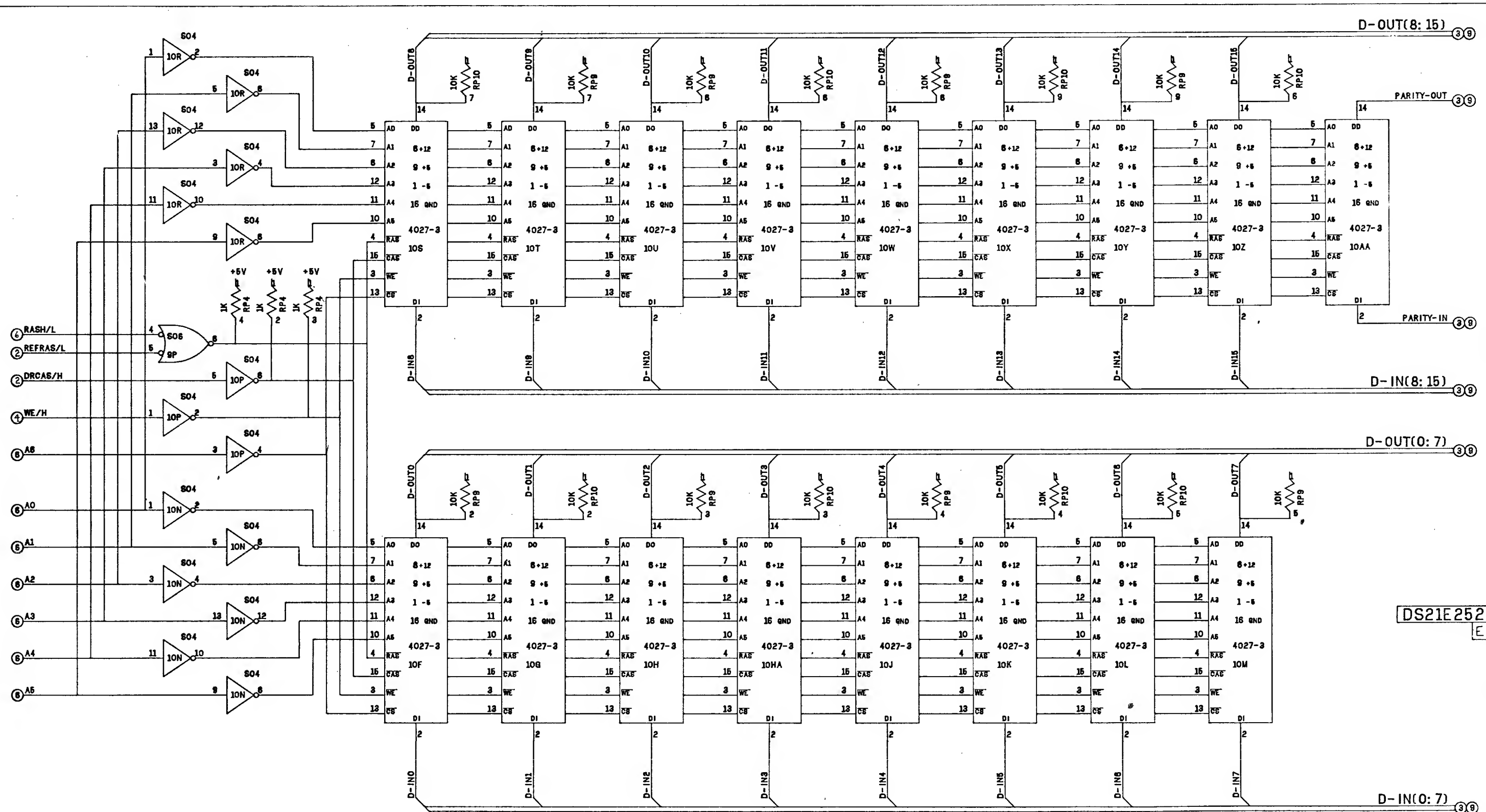


MEMORY CHIPS 9S THRU 9AA  
AND 9F THRU 9M MAY BE  
EITHER ALL 4027-3 OR  
4116-3 PARTS

DS21E252  
E

THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO COMPUTERVISION CORPORATION AND IS NOT TO BE REPRODUCED OR REPRO- DUCED WITHOUT PERMISSION OF COMPUTERVISION CORPORATION				TOLERANCES DECIMAL XX .01 XXX .005 XXX .0010 FRACTIONAL--1/64 ANGULAR--.100				SEE SHT. 1			
MATERIAL				FINISH				REV. 1			
PART NUMBER				NEXT ASSEMBLY				QTY			
COMPUTERVISION CORP.				301 BURLINGTON ROAD ROUTE 42 BEDFORD, MASS. 01730				SIGNATURE DATE			
DA21E250				1				DWG NO. DS21E252			
REMOVE ALL BURRS AND SHARP EDGES				UNIT WT.				SHT 14 OF 16 SHTS			





MEMORY CHIPS 10S THRU 10AA  
AND 10F THRU 10M MAY BE  
EITHER ALL 4027-3 OR  
4116-3 PARTS

DS21E252  
E

COMPUTERVISION CORP.				MEMORY ROW H			
THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO COMPUTERVISION CORPORATION AND IS NOT TO BE LOANED OR REPRODUCED WITHOUT PERMISSION OF COMPUTERVISION CORPORATION				TOLERANCES DECIMAL XX .XX .01 XXX .XX .005 XXXX .XX .0010 FRACTIONAL X/16 X/32 X/64 X/128 X/256 X/512 X/1024 X/2048 X/4096 X/8192 X/16384 X/32768 X/65536 X/131072 X/262144 X/524288 X/1048576 X/2097152 X/4194304 X/8388608 X/16777216 X/33554432 X/67108864 X/134217728 X/268435456 X/536870912 X/1073741824 X/2147483648 X/4294967296 X/8589934592 X/17179869184 X/34359738368 X/68719476736 X/137438953472 X/274877906944 X/549755813888 X/1099511627776 X/2199023255552 X/4398046511104 X/8796093022208 X/17592186044416 X/35184372088832 X/70368744177664 X/140737488355328 X/281474976710656 X/562949953421312 X/1125899906842624 X/2251799813685248 X/4503599627370496 X/9007199254740992 X/18014398509481984 X/36028797018963968 X/72057594037927936 X/144115188075855872 X/288230376151711744 X/576460752303423488 X/1152921504606846976 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X/16849966666797351179826884429387293117425428581588746108928 X/33699933333594702359653768858774586234850857163177492217856 X/67399866667189404719307537717549172489701714326354984435712 X/13479973333437880943861507543509344497940342852709976871424 X/26959946666875761887723015087018688995880685705419953742848 X/53919893333751523775446030174037377991761371410839907485696 X/107839786667510447550892060348074755983522742821679814911392 X/215679573335020895101784120696149511967045485643359629822784 X/431359146670041790203568241392299023934090971287019259645568 X/862718293340083580407136482784598047868181942574038519291136 X/1725436586680167160814272965569196095736363885148077038582272 X/3450873173360334321628545931138392191472727770296154077164544 X/6901746346720668643257091862276784382945455540592308148329088 X/13803492693441337286514183724553568765890911081184616296658176 X/27606985386882674573028367449107135317818222162369232593316352 X/55213970773765349146056734898214270635636444324738465186632704 X/110427941547530698292113469796428541271272888649476930373265408 X/220855883095061396584226939592857082542545777298953860746530816 X/441711766190122793168453879185714165085091554597907721493061632 X/883423532380245586336907758371428330170183109195815442986123264 X/1766847064760491172673815516742856660340366218391630885972246528 X/3533694129520982345347631033485713320680732436783261771944493056 X/7067388259041964690695262066971426641361464873566523543888986112 X/14134776518083929381390524133942853282722929747133047087777972224 X/28269553036167858762781048267885706565445859494266094175555944448 X/56539106072335717525562096535771413130891718988532188351111888896 X/113078212144671435051124193071542826261783437977064376702223777792 X/226156424289342870102248386143085652523566875954128753404447555584 X/452312848578685740204496772286171305047133751908257506808895111168 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X/121416805762878458552491624319166559644444221866448397405668798843764932608 X/242833611525756917104983248638333119288888443732896794811337597687529865216 X/4856672230515138342099664972766662385777768864			

B PORT CONNECTORS

CONN C

1	BINTR	2
3		4
5	BPORTACT	6
7		8
9		10
11	BIRST	12
13	BCLR	14
15	BIOPLE	16
17		18
19	BDS 3	20
21	BDS 2	22
23	BDS 1	24
25	BDS 0	26
27		28
29		30
31	BRQENB	32
33		34
35	BDATA 10	36
37	BDATA 1	38
39	BDATA 4	40
41	BDATA 5	42
43	BDATA 6	44
45	BDATA 7	46
47	FREE	48
49		50
	BINTPOUT	

CONN E

1		B MEM RD	2
3	B MEM RO		4
5	B MEMWRT	B MEMWRT	6
7		BLOWAR	8
9	BLOWAR		10
11	B MEM BUS 15		12
13	B MEM BUS 14		14
15	B MEM BUS 13		16
17	B MEM BUS 12		18
19	B MEM BUS 11		20
21	B MEM BUS 10		22
23	B MEM BUS 9		24
25	B MEM BUS 8		26
27	B MEM BUS 7		28
29	B MEM BUS 6		30
31	B MEM BUS 5		32
33	B MEM BUS 4		34
35	B MEM BUS 3		36
37	B MEM BUS 2	BMA02	38
39	B MEM BUS 1	BWAD1	40
41	B MEM BUS 0	RESET	42
43	BMC 3	BWAD0	44
45	BMC 2	BVCO	46
47	BMC 1	SPARER	48
49		B MEM BUSY	50

ALL UNUSED PINS GROUNDED

VOLTAGE FEEDS FOR CONNECTORS PA,PB	
+12 VOLTS	B46,A7,A8
-5 VOLTS	B81
-12 VOLTS	B71,B72
+5 VOLTS	A/B3,A/B4,A/B97,A/B98
GND	A/B1,A/B2,A/B99,A/B100

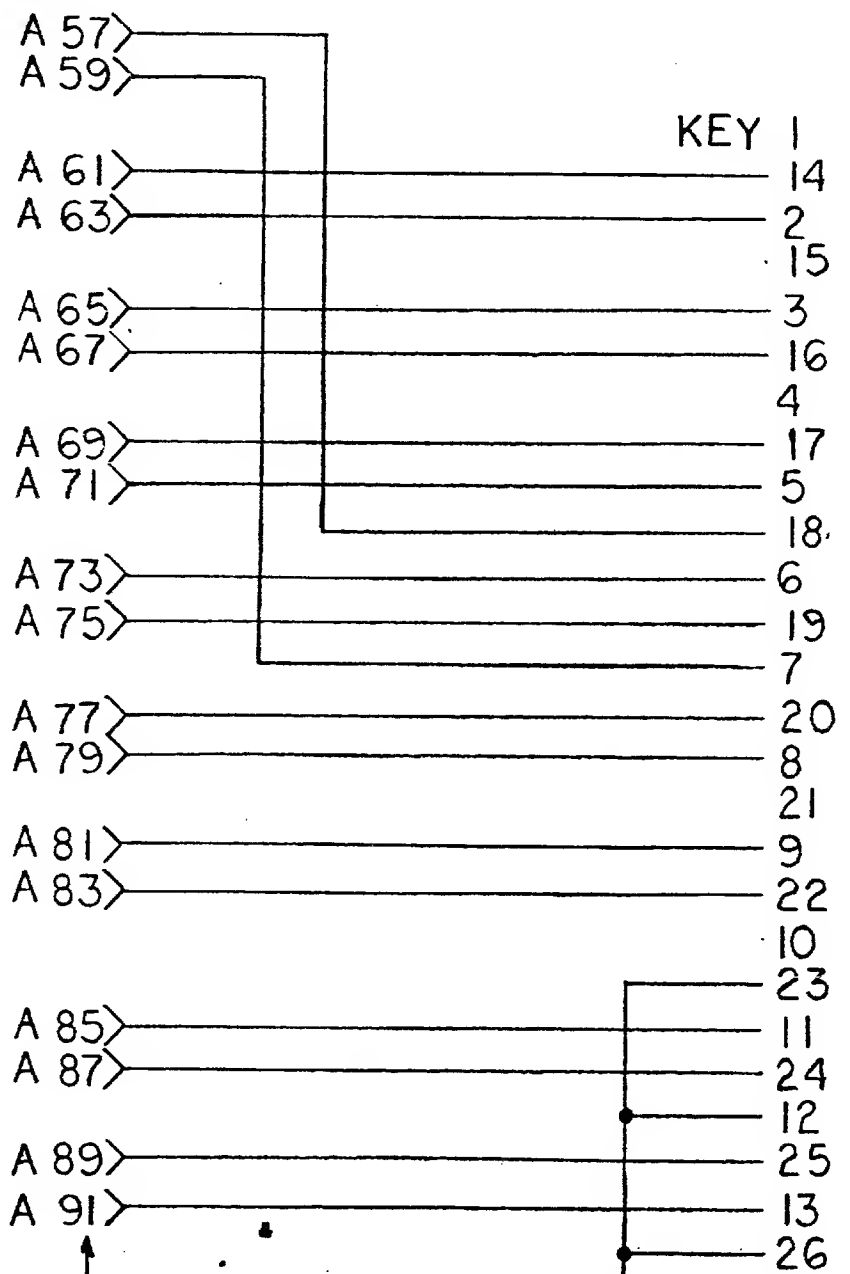
DS21E252  
E

THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO COMPUTERVISION CORPORATION AND IS NOT TO BE USED OR REPRO- DUCED WITHOUT PERMISSION OF COMPUTERVISION CORPORATION		TOLERANCES DECIMAL XX .XX XXX .XXX XXXX .XXXX FRACTIONAL FRACTIONAL ANGULAR			
MATERIAL		DRN	8 NOS	SEE SHT. 1	
FINISH		ENGR	1	TITLE	
PART NUMBER	DA21E250	PROJ		128/32K MEMORY A/B PORT SCH DIA	
COMPUTERVISION CORP. 201 BURLINGTON ROAD BEDFORD, MASS. 01730		SIGNATURE DATE		SCALE DWG NO. SHT 16 OF 16 SHTS	

**VGU Adaptor Board**

Schematic

BS23E027  
A



PLUG ONTO  
VGU  
CARD EDGE  
CONNECTOR

RECEIVES  
C220,  
IOS CABLE (C400)  
EXTENSION

NOTES:

THIS BOARD IS REQUIRED ON ALL CGP'S WITH  
BACKPLANE ARTWORK ET21E056 REV C OR  
EARLIER. IT MAY BE USED WITH MORE  
RECENT BACKPLANES IF DESIRED.

THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO COMPUTERVISION CORPORATION AND IS NOT TO BE USED OR REPRODUCED WITHOUT PERMISSION OF COMPUTERVISION CORPORATION.				TOLERANCES DECIMAL .XX = ± .01 .XXX = ± .005 .XXXX = ± .0010 FRACTIONAL = ± 1/64 ANGULAR = ± 1°00'						
MATERIAL:					DRN T. Rivers	4/72	A	REL ECO 2932	4/72	1/2/78
FINISH:					CHK [Signature]	4/72	SYM	REVISION DESCRIPTION	APPD	DATE
		L23X004	1		ENGR [Signature]	4/24/78	TITLE SCHEMATIC DIAGRAM, ADAPTOR BOARD			
		AA23E025	REF		PROJ [Signature]	11/1/78				
	PART NUMBER	NEXT ASSEMBLY	QTY		MFG [Signature]	1/72	SCALE	NONE		
COMPUTERVISION CORP. 201 Burlington Road Bedford, Massachusetts 01730					SIGNATURE	DATE	UNIT	DWG NO. BS23E027		
					REMOVE ALL BURRS AND SHARP EDGES		WT.	SHEET 1 OF 1 SHEETS		

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Order No.: \_\_\_\_\_

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